The Builder.

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Design for New Public Offices and Technical Institute, Leyton.—By Mr. F. H. Tulloch, A.R.I.B.A. ..... *Double-Page Ink-Photo.*
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West Australian Notes.

WESTERN Australia, the Cinderella of the Australian colonies, seems at last to have been found out by her fairy godmother, and from a hand-to-mouth existence has suddenly been elevated to the dignity of, apparently, the most prosperous colony of the group, with a rapidly increasing revenue and the ability to spend it, besides such further advances as a confiding uncle, in the shape of John Bull, is willing to make on loan.

The enormous territory, nearly a third of the continent, and the paucity of population are by-words; but the magic influence of gold discoveries in the interior is the cause of the sudden change that has taken place—and the gold is there, not in one or two patches, but spread over a very extensive section of the country.

To an architect it is very interesting to see a new centre of population spring up in the desert almost as it were by magic; and though there is nothing to interest the lover of the beautiful in Coolgardie or Cue as they now are, the possibilities of the future are an unfailing source of speculation and prophecy to the sanguine inhabitants. So far, calico tents, hessian huts, and galvanised iron banks, stores, and hotels predominate; but, nevertheless, there were to be counted the signboards of seven architects, though what they find to do in the way of architecture is a mystery. Some take the sub-title of "mining surveyor," and probably in this line find more profit than in regular work. There is, it may be observed, one stone building, or rather front of a building, though what it must have cost for water it would be interesting to know, especially as that liquid, if condensed, sold at 6d. a gallon till the rain came.

However, Coolgardie is the most progressive place of a now progressive colony, and a large stone building for offices and exchange is to be put in hand at once, and other solid structures are to follow, so that a year hence it is probable one would scarcely recognise it as the same place; that is, if the promises of gold given by the prospectors' claims are verified on deeper sinking, and if a permanent supply of water is obtained: two large "ifs," the solution of which will make or mar this outpost of civilisation.

The same may be said of Cue, on the Murchison, except that for water one must read timber, as the former is comparatively plentiful, and in the main street adjoining the public well one may indulge in the unheard-of luxury of a shower-bath for the modest sum of one shilling. The water is hauled up by two men, and a bucket discharged over your head while you wait, and then you walk back in your pyjamas across the dusty street to your tent or hotel, as the case may be. With a shade temperature of 110 deg. and perpetual dust, life would not be worth living without that bath. But there was not even that minimum of comfort at Coolgardie.

There are no stone buildings in Cue except the Wesleyan Church. All the rest are of "bats," iron, or hessian. "Bats" are simply sun-dried bricks, and put together with mud and the merest sprinkling of lime, make a good wall so long as the water does not get to it from above or below; but in this town, a year or so old, many of the bat walls are already crumbling. Four miles away is the rival township of Day Dawn, and here is quite a pretentious one-story rubble-stone faced hotel, with burnt brick dressings. Its style, so we were informed with much pride, is "Broken Hill," and thus the great silver-mining town of New South Wales has added a new order to architecture. The walls inside are plastered with mud innocent of lime, but ceilings are non-existent, and from the bedrooms one looks straight at the iron roofing and enjoys the conversation of one's neighbours. With freight at 24*l.* per ton from Mullewa, the nearest railway station (240 miles away), wooden ceilings are too great a luxury even for a hotel-keeper, and so he will wait till the railway is made. The attenuation of the rafters is marvellous; they are 3 × 1, and spaced about 5 ft. apart. The jerry-builder is outdone.

In Perth, the capital city of this vast colony, one finds a marked contrast to the temporary expedients of the feverish life of the goldfields. Situated on the gently-rising shore of the Swan River, which here spreads out into quite a lake, it has, or had till quite recently, all the old-world quietude of an English country town, and the many solid but unpretentious houses of fifty years ago, with their fine gardens down to the water's edge, help the illusion.

Signs of progress are, however, not wanting; and, twenty years ago, a picturesque town hall in Domestic Gothic was erected from designs by an English architect, which, in general composition, is quite equal to simple works of the kind in the old country, though cement replaces stone in the dressings, and the detail leaves a little to be desired. Of more recent date is an Anglican Cathedral of brick and stone, Early English in design, of which the Perth people are not a little proud, though in dimensions it is not greater than an ordinary parish church; still, it cost 17,000*l.*, a large sum for a small community. In plan it is of the usual type—nave, aisles, and transept, with a lead-covered flêche over the crossing.

Close by are the Government offices, consisting of the Post and Telegraph Department, with its large central hall, having the Treasury on one side and the Works Department on the other. The latter is the newest addition (in brick with cement dressings), and is really good Renaissance work with a somewhat American flavour. The arcade and projecting balcony of the first floor are the most noticeable and satisfactory features. To Mr. Poole, the present Government architect, is due the credit of this advance in official design. His Government printing-office, with its rather heavy angle turrets, is not so satisfactory, but the subject requires rather more prosaic treatment, and, moreover, it is the first instalment of a larger building. With the increased prosperity of the Colony, other Government works are sure to follow, and sites are already being discussed and decided for Parliament Houses, a Supreme Court, and the University. Of commercial buildings the banks are the most important, and the offices of the West Australian, the Union, and the National are the best. They are all placed on St. George's-terrace, the only street of considerable width in the city, and are Italian in design and cement in treatment.

Stone of good quality is not found in the near neighbourhood, and even if it were, the expense of working it is prohibitory in the young country where all labour is expensive

There is one very pretentious hotel with huge attached cement columns on its front, a specimen of how not to do it (in design), and that is about all worth mentioning in business premises. A few small villas, fairly suited to the climate, are being erected, but they are much too ornate in detail, and have "Melbourne" writ large on their elevations. Till recently there were only four architects in Perth, and they found it hard work to make ends meet, but now their name is legion, and a newcomer's brass plate regularly makes its appearance at about the rate of one a week. So there is no hope here for the unemployed of the profession in England; there are too many architects already in Australia; and Adelaide and Melbourne, especially the latter, could supply architectural talent to a dozen Perths, for it must be remembered it is still only a small town of about 14,000 people; and the other towns of the colony are little better than good-sized villages.

To what the colony may grow is an open question; the gold-fields have given it a start, but only an increased population of agriculturists and pastoralists can ensure permanent prosperity.

FURTHER NOTES ON ANCIENT CAMBODIAN ARCHITECTURE.

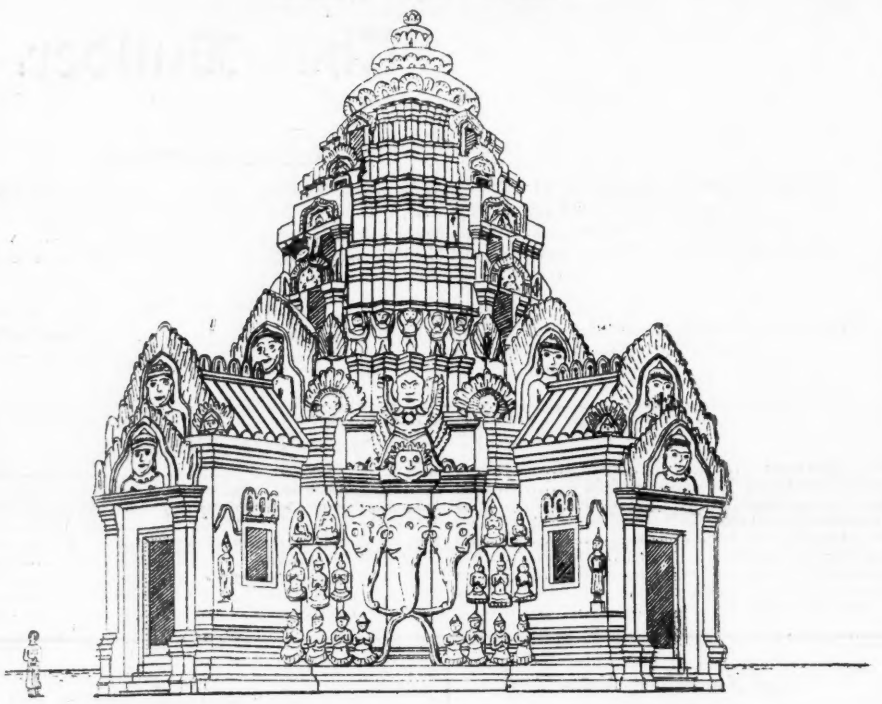
THE principal parts of the temple of Angkor Wat (see page 118 *ante*), are supposed to have been completed at the end of the first century A.D., but the works were proceeding long after this time, and when the sacred books of the Buddhism arrived from Ceylon, in 638 A.D., they were not yet at an end.

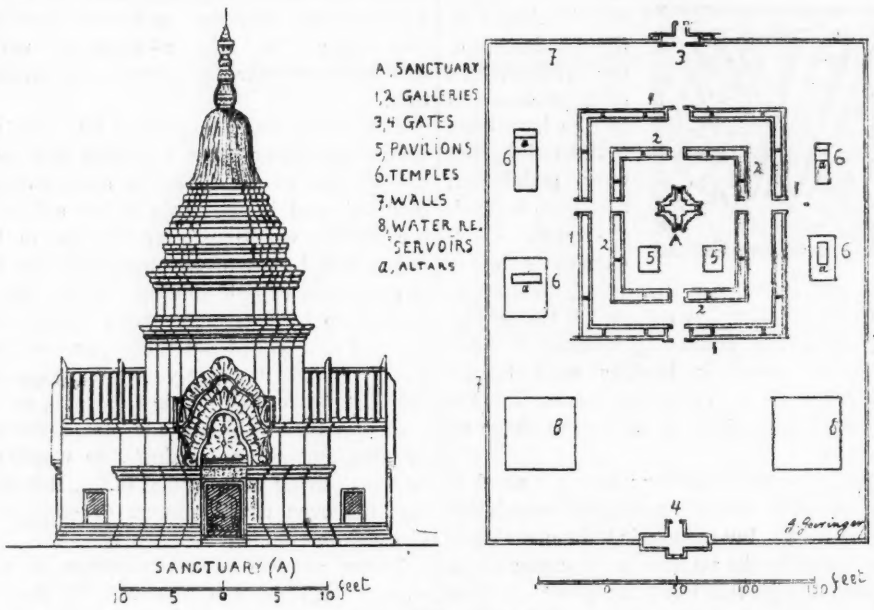
A stone road going from the city toward the south is now mostly covered by earth. Following this road one sees on the right hand the ruins of the sanctuary of Bakheng on the top of a hill. At a distance of two miles we reach Angkor Wat. Then, in contrast with the solemnity of this magnificent temple, the town of Siemrap offers to the view its walls, erected a little more than a century ago with stones taken from the ruin. It is a large village of 1,000 inhabitants. Proceeding toward the south we come on two ruins presenting some interest; that of the temple of Atwea, and then the sanctuaries of Pnom Krom. Many of the monuments are completely ruined. Ban Yang, Pinean Acas, and the city gate, illustrations of which are appended to this article, are still sufficiently well preserved to give a good idea of their structure; but judging by their condition they will probably before long be only ruins. Angkor Wat is the best preserved. Nearly all are surrounded by thick jungles abounding with tigers and other wild animals.

Angkor Wat, the ancient Royal temple of the Khmers, stands in the centre of a park enclosed by a rectangular wall which has a total length of nearly four miles. Outside the walls is a canal, crossed by sumptuous bridges on the east and west, and plainer ones on the north and south. The principal entrances, as before observed, are in the western wall. They are two in number, placed at each end of a monumental façade formed by three porticos surmounted by towers, with a gallery on either hand. One temple is divided into three stories, each surrounded by a gallery; in the centre of the highest is the sanctuary, crowned by a tower.

Sculptures of gods, heroes, demons, &c., cover every part of the first gallery. In the centre are spacious courts, in like manner profusely decorated with sculpture. Fourteen stair flights give access to the terrace of the second gallery. Above this rises a block of building on which is the third gallery. Within this gallery are other sculptured courts, and in the centre the great central sanctuary, over which is a large and lofty tower, covered with sculpture. A statue of Buddha is placed on an altar inside the sanctuary. The statue was presented by the late King of Siam about forty years ago. A few poor priests, in charge of the idol, live in the neighbouring jungle.

Sanctuary, Temple of Preakong.





Temple of Pnom Bachey.

The second gallery is divided into thirty-six rooms, all decorated with bas-reliefs of heroes and battle-scenes.

The temple of Angkor Wat has never been completely deserted, to which fact is to be ascribed its relatively good state of preservation. It has always been held in high veneration, and is still the object of pilgrimages. Its first erection is traditionally attributed to the second century A.D., though the work of ornamentation or carving within its precincts is said to have been continued for some centuries after that epoch.

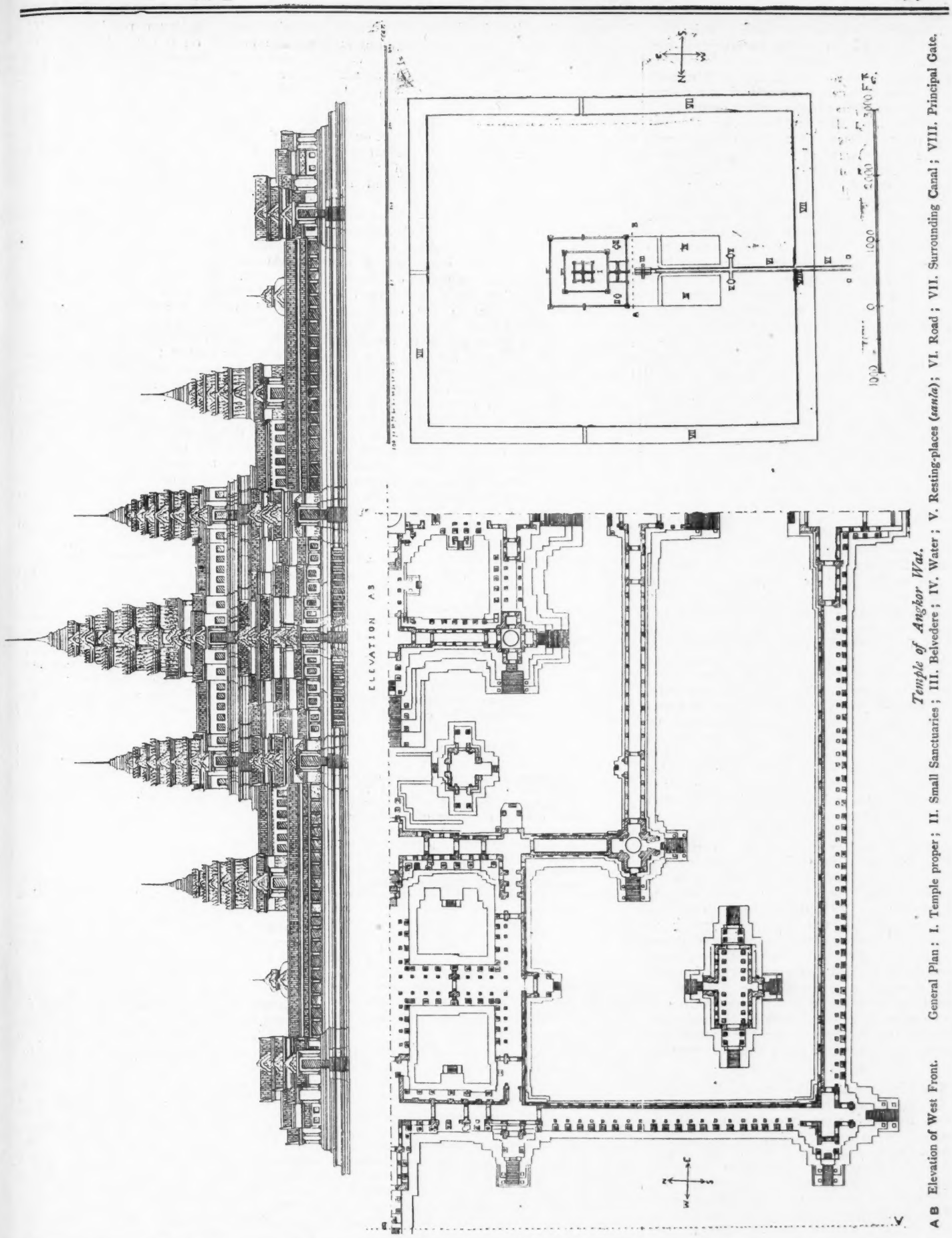
The temple of Preacong, some miles on the south-east of Angkor Wat, offers to the view amongst its ruins, a Phrasat, or sanctuary, probably contemporaneous with the best monuments of the Khmers. We give a restored sketch of it.

The temple of Pnom Bachey is placed at a short distance from Pnom Penh, the modern capital of Cambodia, about one hundred miles on the south of the group of ruins of Angkor.

The sketch of this gives an idea of the appearance of the later monuments of the Khmers, when their empire was on its decline. According to a sanscrit inscription found in the ruins, this temple was erected in the eleventh century, A.D.

NOTES.

THE interim report of the Committee of the House of Commons on Distress from Want of Employment, more shortly called the Unemployed Committee, illustrates the prevailing weakness of Parliament to try and please sections of the country by appointing Committees which, specious in appearance, can do no real good. The fourth clause of the reference was that the Committee should make an interim report at the earliest possible date "on what steps should be taken either by Parliament, the Departments of the State, or local authorities to meet the distress this winter." Every sensible man knew perfectly well that even if any practical scheme could be formulated, which was doubtful, there would not be time to work it out before the pinch of the winter had departed. But the Committee cannot recommend any scheme (*a*) which would be immediately available during the remaining weeks of the winter season, or (*b*) which Parliament would take into consideration without further inquiry. This is what, as we have said, was to be expected; the appointment of the Committee was a mere political sop. One thing, however, is satisfactory, the report shows that there has been "no lack of employment beyond that which might be expected as a consequence of an unusually severe winter." Of course, the consequence of an unusually severe winter necessarily



Temple of Angkor Wat.

A B Elevation of West Front. General Plan: I. Temple proper; II. Small Sanctuaries; III. Belvedere; IV. Water; V. Resting-places (*sanla*); VI. Road; VII. Surrounding Canal; VIII. Principal Gate.

is a large amount of temporary distress, and this the Committee tell us has existed during the frost. But we do not want a Committee of the House of Commons to give us information which every observant person can ascertain for himself. The Committee, however, are going to continue their investigations into the question of want of employment. But no interest can possibly attach to their work, for we have already had the question considered both by the Royal Commission on Labour and by that into the State of Agriculture. Some more facts may, no doubt, be collected and indexed in a Blue-book. But employment and want of it are goyerned by great causes acting throughout the world, and no Committee of the House of Commons will affect these.

WE recently commented on the excellent and liberal conditions issued by the authorities of West Ham in their instructions to architects for the competition for a new Technical Institute. It is unfortunate that the West Ham County Council, after making such an excellent start, should have put themselves in the wrong in the most extraordinary manner by issuing, six weeks after the competition was advertised, supplementary instructions to competitors (apparently, partly in answer to enquiries), which for those who have got their plans in a forward state must mean beginning over again. One of these new instructions is that a space of 25 ft. must be left between the buildings and the line of road on the flank of the site. There was nothing to indicate this in the original instructions, which we have looked over carefully. Another addition is that a refreshment-room and bar are to be provided, and another that the space required for boiler and engine-room and electric light machinery has been doubled. But the important point is the cutting off of twenty-five feet on the flank of the building. We have seen one design in which the plans and elevation are

in ink, and according to these new instructions would all have to be commenced over again. Did the assessor agree to springing this surprise on the competitors? The only supposition we can make is that, as the time was by the same supplementary instructions extended from May 1 to June 1, the Council and their assessor (perhaps from some knowledge of the ways of competing architects) assumed that in all probability the competitors would not have got very far with their designs yet. It is not safe, however, to make such assumptions, and competition committees should settle details more carefully at the outset. If there are many competitors who have got their plans in a forward state their time will have been wasted, and it seems a question whether they will not have a legal claim against the West Ham authorities for compensation.

THAT all the great waterfalls of the world will be utilised for the development of power seems to be coming about rapidly. The beautiful Snoqualmie Falls, in the State of Washington, U.S.A., have been sold, and a large power-station, which is being erected there, is expected to begin working this year. The scenery of the State of Washington, which State must not be confounded with any of the over 200 towns in America of that name, rivals Switzerland in beauty. The Snoqualmie Falls are 268 ft. in height, or 100 ft. higher than Niagara. They are only twenty-three miles west of Seattle, a seaport town which, fifteen years ago, contained only some three thousand inhabitants, but now has a population of over fifty thousand. The company will have ultimately a capital of 400,000*l.*, and at present is laying down plant to develop and deliver 5,000 horse-power to Seattle. They intend to charge 6*l.* per horse-power per annum there, or about half what the same power developed by steam would cost. They have recently got a demand for power and light from an unexpected source. Along the line of transmission are many coal-mines. These mines use for pumping, hoisting, and lighting over 1,000 horse-power, which they generate by the use of their own coal. It is found that it pays the coal-mines to use the electric power, as the cost is no greater than what they pay already, and it reduces the danger from fires, &c., to a minimum. With Niagara in the east and Snoqualmie in the west, proposing to transmit about 10,000 horse-power a distance of twenty-six and twenty-three miles respectively, it will be seen that in America the commercial value of large waterfalls is well recognised. Whether the world will gain as much as it will lose by the substitution of the mechanical for the picturesque value in great waterfalls is another question.

IN his monthly report to the Kensington Vestry, Dr. Orme Dudfield calls attention to one subject in connexion with the recent severe frost which is of considerable importance in a sanitary sense. He says:—Amongst people who have taken advantage of the prolonged frost to lay in a store of ice, for summer use, not the least diligent have been the peripatetic makers and vendors of the delicacy known as 'ice cream.' My attention was directed by Inspector Pettit to the proceedings of some of these people, of Italian origin, who have collected, from the Grand Junction Canal, large quantities of ice, now stored in certain stables in this parish. I have inspected that portion of the canal, not in Kensington, whence the ice was taken. The water was very dirty, and the ice far from satisfactory in appearance. Multitudes of fish had been frozen into the ice, as well as dead dogs, cats, &c., in a more or less advanced state of decomposition. I was informed, moreover, that the residents in some of the houses abutting on the canal had, during the frost, cast excremental matters upon the ice, and I myself saw considerable quantities of vegetable refuse thereon. No doubt care is taken by the ice collectors to avoid crude filth of all descriptions, but ic from such a contaminated source would obviously be unfit for human consumption." The question as to where the ice is got from that goes into "ices," cheap ones especially, has been a good deal overlooked, and Dr. Dudfield's hint on the subject ought to receive the attention of medical and sanitary inspectors. An analysis of ices sold might lead to some important and not agreeable disclosures.

THE report to the Local Government Board by Dr. S. Monckton Copeman on the general sanitary condition of the hamlet of Crofton, in the parish of Orpington, in the Bromley Rural Sanitary District, with reference to the occurrence there of outbreaks of diphtheria, draws attention among other points to the effect of the special quality of the land in a district pervaded by cesspools. Contrary to Dr. Copeman's advice, but with the approval of the Authority, an experimental system was tried which is known locally as the "Bexley" system—*i.e.*, the emptying of cesspools by means of pumps and carts, and the deposit of the sludge on the neighbouring agricultural land. Crofton is situated on high land 380 ft. to 400 ft. above the level of the sea. The soil is mainly London clay with large pockets of Woolwich pebbles and porous sea sand. The ground is full of land springs, from which the river Cray takes its source, and the pressure of this land spring-water makes it impossible to construct impervious cesspools. The necessary result is that the surface soil becomes impregnated with sewer overflow, and has a strong tendency to promote the growth of diphtheritic germs. The Bexley system has been unable to cope with these difficulties, and, as Dr. Copeman predicted, another serious and fatal outbreak has resulted. In concluding his report, Dr. Copeman says:—

"At present the soil is not only water-laden, but filth-laden as well. This state of affairs would undoubtedly be improved by an efficient drainage system, which would also probably aid in the removal of ground water and afford an opportunity for the gradual cleansing of the soil, with the additional advantage that all excremental matters and liquid refuse would be promptly removed from the neighbourhood of dwellings. The relative cost of any such drainage system is, of course, a matter for the consideration of engineering experts, but in the event of the district growing in the future, each new house, supposing the Bexley system to be retained, would require an expensive cesspool, while the cost of connecting each house-system with an existing sewer would be comparatively trivial. I would, therefore, recommend that the Bromley Rural Sanitary Authority should undertake as expeditiously as possible the laying down, in connexion with the existing Orpington sewer, of a sewerage system to serve the Crofton district."

AMERICAN street-paving has not generally been in the past looked upon as supplying a standard of excellence for other countries. That has been due to political or municipal rather than engineering causes, and there has been much improvement of late. Mr. S. Whinery has contributed a paper to the "Journal of the Association of Engineering Societies of Philadelphia," in which he discusses the properties desirable in an artificial asphalte pavement, which he describes as an artificial sandstone, composed mainly of quartz sand of a fine sharp character, cemented together with asphalte, mixed with the residuum of petroleum; the mass resting upon a proper foundation. Refined asphalte is melted at a temperature of 300 deg. Fahr., after which about 17 per cent. of residuum oil is added to soften it. The whole is thoroughly mixed by blowing air into it. The sand is screened and also heated to a temperature of about 320 Fahr. by means of revolving drums placed over a furnace. Pulverised limestone is then added to the sand. The sand, limestone, and asphalte are next thoroughly mixed in a pug-mill, and the material is then ready for use. The proportions are 77 per cent. of sand, 10 per cent. of limestone, and 13 per cent. of asphalte and petroleum residuum. The asphalte is laid on the foundation in two thicknesses, the lower coat being about 5 per cent. richer in asphalte than the surface coat A steam-roller is used to consolidate the mass.

WE hear much of the technical education of the younger men who will be practising independently some ten years hence. We never hear of anything being done for the older men who may not have had opportunities of keeping in touch with modern improvements. We do not often see older men attending, say, a lecture on stresses or strains at the Architectual Association. Now we hear of special arrangements being made at Berlin for older practitioners who are anxious to improve themselves, and who are not great readers, or find little satisfaction in the specialist papers rapidly read at the meetings of their professional associations. Dr. Weyl, well known as a hygienist in Germany, proposes a course of lectures on sanitation, specially worded for the older brethren, and other lectures of this kind are to follow. Care has been taken to find a hall out of the route of the juniors of the profession, *i.e.*, at one of the medical institutions. The idea certainly deserves attention, for are there not men to be found among us, especially in the provinces, who practise on the lines of 1850 and 1860 to the detriment of their clients?

ANOTHER international exhibition in the United States is promised (or threatened), to be held in Atalanta, from September 18 to December 31 of the present year, under the title of the "Cotton States and International Exhibition." It is recognised by the United States Government, which has voted a considerable sum for a Government building and exhibit. The exhibition will include the following classes of exhibits:—

"Manufactures and liberal arts; machinery; minerals and forestry; agriculture; electricity; transportation; a woman s building; a fine arts building; and a negro building. It is not proposed, we are told, to build cheap imitations of the World's Fair buildings, or spend money on tawdry decorations, but rather to provide imposing and substantial roomy buildings, which will furnish ample space, well lighted and ventilated, for the display of every description of exhibits."

A GERMAN technical publication has been collecting particulars as to the use of the shower-bath in public buildings. By this form of bath many of the difficulties which were incidental to the introduction of baths have been removed. A shower-bath occupies only an area of about 20 ft., of which rather more than half is necessary for the bath itself, and the rest for the dressing-room. The volume of water needed is moderate, $4\frac{1}{2}$ to $6\frac{1}{2}$ galls. being sufficient for barracks, and 10 to $10\frac{1}{2}$ galls. in prisons. About 39 gallons is considered a moderate consumption for an ordinary bath. In barracks a dressing-room common to all bathers can be used, and it has been found that eighteen shower-baths were sufficient to allow 400 soldiers to take their bath in an hour and a quarter. In prisons separate dressing-rooms are necessary, and ten minutes for each bath will be occupied. The cost is 0·06d. per head in barracks, 0·08 in schools, and 0·25d. in prisons. The cost of fitting up these shower-baths complete in an existing building would be 40*l.*, a set of twelve costing 65*l.* to 75*l.*

A LARGE clearance that has just been made on the west side of St. John-street, Clerkenwell, involves the demolition of Swan-alley and the greater part of Peters-lane leading into Cowcross-street. In the latter thoroughfare were some curious old wooden houses, standing 100 yds. beyond the City boundary, with their backs abutting upon Swan-alley, and built after a mode of which now remain but very few examples in London, even much more remote from the City. At the corner of the lane is a public

house, the "Queen's Head," or "Market Distillery" (speedily to disappear), on whose front may yet be seen a stone thus inscribed:—"Opposite this place Hicks Hall Formerly Stood, 1 Mile 1 Furlong and 15 Yards from The Standard in Cornhill and 4 Furlongs 205 Yards from Holborne Barrs down Holborn up Snow Hill, Cow Lane, and Through Smithfield." Hicks's Hall, whence were measured the miles along the great north road, was a building, 128 ft. by 32 ft., of two floors, in red brick, with a high-pitched tiled roof, and stood in the wide roadway of St. John-street. It was erected in 1612 at his own cost, by Sir Baptist Hicks, for the County Justices, who, until that time, had commonly met in the "Castle" Tavern, by Smithfield Bars, at the south end of St. John-street, through the present Meat Market: he gave it to them in 1618. Knighted in 1603, Hicks did not relinquish business as a silk mercer, to the no small umbrage of the Aldermen, in reply to whose remonstrance he said that his servants kept the shop, though he had a regard to the special credit thereof, and that he did not live altogether upon interest, as most of the Aldermen Knights did, laying aside their trade after knighthood. His shop was at the corner of Queen-street (then Soper-lane) and Cheapside. Its site was taken for the recent widening of the former. In 1628 he was elevated Baron Hicks, of Ilmington, and Viscount Campden. The new Sessions House, on Clerkenwell Green, was built in 1779-82, at a cost of 13,000*l.*, after the designs of Thomas Rogers,* and thither was removed a fine carved oak Jacobean chimney-piece from Hicks's Hall. In the old hall the regicides were tried, William, Viscount Russell, was condemned to death, and a packed jury acquitted Count Königsmarck of having procured the assassination in the Haymarket of Thomas Thynne. We may also mention here the demolition that is now in progress of some houses at Storey's-gate, together with the whole of Prince's-court, at the north end of Prince's-street, for the erection of flats, because John Wilkes was living in the court, in 1788, according to Timbs's "Curiosities of London." On January 4, 1890, we published an illustration of the tablet inscribed "Prince's-court"; it has no date, but Long-ditch was re-named Prince's-street in the interval 1782-5.

THE general average of the Institute of Water Colours Exhibition seems, perhaps, rather higher than usual, at least the proportion of works that are interesting seems larger, though some of the best exhibitors send drawings that do not show them at their best. The President's round-shouldered young lady with a great want of general "figure," under the title of "Celia" (383), has a beautiful face, but is not otherwise attractive even in costume, which is not often the case with the works of this accomplished colourist. There are few figure subjects that are of any importance. Mr. Dollman's "Young Hopeful" (280) is one of his usual humorous groups, finished with his usual care. Mr. Wetherbee's "Weaving a Bond" (442) is a small idyll, noticeable as a good bit of colour; Mr. Fowler, in "Dreamland" (423) and "A Muse-Frequented Rill" (517), shows pleasant studies of ideal figures; Mr. Kilburne's "His Royal Highness" (458) is a work of some importance and humour. The chief attractions of the exhibition lie in the landscapes, among which are some studies of special effects which are powerful and interesting; Mr. Hope MacLachlan's paintings of night effects for instance, "The Harbour Channel" and "Over the Bay" (49, 84), and Mr. Arthur Severn's study of the frozen Thames at Chelsea (380). Among landscapes of less exceptional (or eccentric?) aims is a beautiful one by Mr. Aumonier, "The Stream" (310), a very fine work in every respect. Mr. Joseph Knight pursues his usual aims in works that are somewhat conventional in colour and in the way of regarding nature, but are unusually good within their own scope, especially "Autumn" (144), which is also less mannered than usual. Among others of the best are Mr. Geo. Marks's "Evening's Quiet Hour" (56), a thoughtful and highly-finished drawing; Mr. Hine's misty picture on the Lewes Downs (108); Mr. Wimperis's "Yorkshire Moor" (115); Mr. Orrock's "Kenilworth" (156), where however the ruin and the landscape are pervaded too much by one tone; Mr. Stanley Inchbold's "Winchester to Rye" (391); Mr. C. E. Johnson's "Approaching Thunderstorm" (547); Mr. Wimperis's "View on the Downs near Slindon" (571), Mr. Weedon's "On the South Coast" (577), a good sea study, and Mr. Arthur Severn's large and perhaps rather sensational sunset effect, "Signs of Clearing" (630). Mr. J. Nash has made a spirited and interesting work of the incident of "The Rescue" (601) of the inmates of a disabled ship by the boat of a "liner," the long perspective of whose hull is very effectively drawn, and the group in the boat in the foreground is well studied. Architectural subjects are represented pretty fully and fairly, by such drawings as Miss Rayner's "Oriel-st., Oxford" (8), Mr. Shoosmith's "Oudezijds Kolk, Amsterdam" (19), Mr. Barratt's "Entrance to the Gold Mosque, Amritsar" (85), Count Seckendorff's "Windsor Castle" (176) a study in the courtyard; Mr. Brockbank's "The Bridge, Sandwich" (349); Mr. Aitken's "Corner of an Anglesea Village" (397), a very characteristic bit of village architecture; Mr. Fulleylove's "Blenheim Palace" (398) and several other works, and Mr. Alfred East's view in "Northampton" (463), with the fine old classical parish church seen on the right.

THERE is to be an exhibition of original drawings by Sir John Tenniel at the Fine Art Society's Galleries on and after the 30th of this month. This will be an artistic event of unusual interest, especially as no collective exhibition of the works of this great artist in black and white has, we believe, ever been held.

THE TRIBUNAL OF APPEAL UNDER THE NEW LONDON BUILDING ACT.

THE following are the regulations as to the procedure to be followed in cases of appeal to the Tribunal, and the fees to be paid. These regulations have been drawn up by the Tribunal and approved by the Lord Chancellor in accordance with Section 184:—

"All communications shall be written, typewritten, or printed on foolscap paper.

All drawings shall be on tracing linen and in duplicate.

Any further drawings or copies of drawings shall (if so required by the Tribunal) be supplied by the appellant.

Appeals shall be addressed to the Tribunal of Appeal, and shall be lodged, and the fee thereon shall be paid, at the office of the Tribunal, No. 13a, Great George-street, Westminster, S.W., by hand, within the period (if any) prescribed by the Act; and, where no period is so prescribed, within fourteen days after notice of the decision, determination, certificate, requirement, or regulation appealed against has been given to or served on the appellant.

The appeal, which shall specify the section and sub-section under which it is made, shall be accompanied by copies of the original application and of the decision, determination, certificate, requirement, or regulation appealed against, with copies in duplicate on tracing linen of all plans or drawings relating thereto. These documents shall be supplemented by a short statement of the facts, setting out the grounds of the appeal, together with a list of the names and addresses of all parties to whom notices under the original application and of this appeal have been given.

The appellant shall also within the time limited for lodging the appeal give notice of such appeal to the London County Council, and in cases where the original applicant is not the appellant, to such applicant; and in case of an appeal under any of the following sections, also to the persons mentioned opposite such section.

Section.	With Reference to	Persons to whom Notice to be given.
5 (8)	The Superintending Architect's determination as to the level of the ground.	The Superintending Architect. The District Surveyor.
13 (3)	The Council's determination that the prescribed distance shall be greater than 20 feet from the centre of the roadway.	The Local Authority.
13 (4)	The Council's consent to the erection, &c., of any building, &c., at a distance less than the prescribed distance from the centre of the roadway.	The Local Authority. The Owners and Occupiers of the nearest building on each side of the proposed building.
19	The refusal or conditional grant of Council's sanction under Part II. to Streets.	The Local Authority.
19	The refusal by a District Surveyor of his Certificate to plans of a building or structure to be altered or re-erected under Section 13.	The District Surveyor. The Local Authority.
25	The Certificate of Superintending Architect as to general line of buildings.	The Superintending Architect. The Local Authority and all other persons entitled under Sec. 24 to notice of the Superintending Architect's Certificate.
29	The Certificate of the Superintending Architect determining in what street or streets a building or structure is situate.	The Superintending Architect. The Local Authority and all other persons entitled to notice of the Superintending Architect's Certificate.
43 (*i*) & (*iii*)	The refusal of a District Surveyor to certify plans.	The District Surveyor.
44	The Council's determination in cases where a person desires to rearrange a cleared area.	The Local Authority.
46	The Superintending Architect's Certificate determining the front and rear of a building.	The Superintending Architect.
48 (*2b*) & (4)	The Council's refusal to allow a building to be erected to a greater than the prescribed height.	Such Owners or Lessees as the Council may under this section direct.
78	The District Surveyor's requirement respecting the construction of public buildings in case of disagreement.	The District Surveyor.
79	The District Surveyor's requirement respecting the conversion of any building into a public building in case of disagreement.	The District Surveyor.
122	The Council's refusal to permit, or any of the Council's regulations as to, or the decision of their Engineer, or conditions imposed on the Council's grant of a licence for the erection of dwelling-houses on low-lying land.	The Council's Engineer. The Local Authority.
132	The refusal of a District Surveyor to grant a Certificate as to sky-signs.	The District Surveyor.

All documents lodged with an appeal shall remain deposited in the Office of the Tribunal as records of the case.

After the lodgment of an appeal the earliest convenient appointment shall be arranged for the hearing of the appeal, and shall be communicated to the parties by letter. The Fees in respect of the view (if any), the hearing and order shall be paid by the appellant before the hearing.

Appeals shall be heard at such place as the Tribunal may from time to time determine.

The hearing of appeals shall be open to the public.

The full Tribunal of three members shall sit to hear appeals.

The London County Council and the parties interested may appear before the Tribunal either in person or by counsel, solicitor, or agent, and the procedure at the hearing shall, subject to such variations as the Tribunal may think fit, be similar, *mutatis mutandis*, to that adopted on the trial of actions before the High Court, thus:—

Preliminary objections, if any, to be heard and disposed of.
Appellant to state his case and call his witnesses.
Respondent to state his case and call his witnesses.
Any other parties interested to be heard.
Appellant to reply.

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* *Teste* "Dictionary of Architecture." It has, however, been claimed for John Carter (the "Architect" of the "Gentleman's Magazine," 1798-1817), whose designs, dedicated to the Justices, are in F. Newbery's "Builder's Magazine, or Monthly Companion for Architects . . . by a Society of Architects" (1774-6). See the four plates; the similarity, in plans and elevations, is remarkable. Pownall modified the interior in 1860; an enlargement, southwards, was made in 1876.

The decision of the Tribunal shall be embodied in an order in writing under the seal of the Tribunal.

The original order and all documents relating thereto shall be filed and preserved in the office of the Tribunal.

Office copies, under the seal of the Tribunal, of orders and other documents shall be upon payment supplied to any party to an appeal, and shall be admissible in evidence for all purposes of the Act and Regulations to the same extent as the original would be admissible. All copies of orders or other documents appearing to be sealed with the said seal shall be deemed to be Office copies without further proof.

The file of documents shall be open to inspection by any person at the Office of the Tribunal between the hours of 11 and 3.

The fees to be paid to the Tribunal by the appellants and other parties are as follows:—

	*Higher Scale. £ s. d.	†Lower Scale. £ s. d.
Lodging appeal	2 0 0	1 0 0
View	2 0 0	1 0 0
Hearing	5 0 0	2 0 0
Order	2 0 0	1 0 0
Stating special case	2 0 0	1 0 0
Inspection of an order	0 1 0	0 1 0
" of file of proceeeings	0 2 6	0 2 6

Office copies, 6d. per folio. Plans, &c., according to work involved.

Copies other than office copies, 4d. per folio. Plans, &c., according to work involved.

The preceding Regulations as to procedure and fees to be paid were made by the Tribunal of Appeal in accordance with the London Building Act, 1894, section 184. This twenty-first day of February, 1895.

For and on behalf of the Tribunal,
ARTHUR CATES,
Chairman of the Tribunal.

Approved: HERSCHELL, C.
March 1st, 1895."

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL General Meeting of this Institute was held on the 11th inst., Mr. F. C. Penrose, President, in the chair, to elect the Royal Gold Medallist for the current year.

The Chairman moved—"That, subject to Her Majesty's gracious sanction, the Royal Gold Medal for the promotion of architecture be presented this year to Mr. James Brooks, Vice-President, for his executed works as an architect."

The motion was seconded by Mr. Charles Barry, and carried unanimously.

The tenth General Meeting (business) of the Session was then held, when the following gentlemen were elected:—As *Fellows* — William Henman (Associate), Birmingham; and Paul Waterhouse (Associate), London. As *Associates*—Thomas Kershsw, Halifax; William Hodgen, London; Ernest Edward Fetch, London; Frederick Bligh Bond, Bristol; John Pain Clark, London; William Edward Vernon Crompton, Wallgate, Wigan; Frederick Ernest Pearce Edwards, Liverpool; Henry Ernest Kirby, London; Charles Edward Bateman, Birmingham; Alfred Whitelock Field, Croydon; George Gunn, Ayr; Wilberforce Ernest Hazell, London; John Henry Price, Liverpool; Harry Tom Boden Spencer, London; George Augustus Bligh Livesay, Boscombe, Bournemouth; Alexander Paul Macalister, Cambridge; Thomas Harry Weston, Bristol; Henry James Wise, Gospel Oak, N.W.; Herbert Jeffrey Palmer, New Malden; Joseph Spain, Sunderland; Charles Septimus Errington, Newcastle-on-Tyne; Frederick Brice Hobbs, Waterloo, near Liverpool; Harry Wilson Pye, London; John Cadwallader Dewhurst, Belfast; William Edgar Gauld, Aberdeen; Robert William Horn, Glasgow; Vivian Herbert King, London; Alfred Henry Mills, Manchester; Thomas Aloysius Pole, London; George Patrick Sheridan, London; Percy Henry Adams, London; Harold Bailey, Hull; Percy Paovich Cotton, London; William Adam Forsyth, London; Francis John Potter, London; Charles Henry Smith, London; John Borrowman, jun., London; Harry Ebenezer Budden, London; Frank Berridge Cooper, Leicester; Archibald Campbell Dickie, London; Samuel Stevens Dottridge, London; Arnold Seaward Tayler, London; Harold Edmund Church, London; Henry Ingle Potter, London; Alexander Robert Hennell, Forest-hill, S.E.; Allan John Pinn, Exeter; Sydney Benjamin Beale, London; Henry Ascough Chapman, Scarborough; George Coster, Bournemouth; Ernest Outram Cummins, London; Herbert Alfred Legg, London; George Oakley Scorer, London; Thomas Duncan Rhind, London; Luke Barlow, Manchester; John Laurie Carnell, Norwich; Hyla Edward Elkins, London. As Hon. Corr. Member: Louis Viollier, Architect to the Cathedral of Saint-Pierre, Geneva, of Geneva.

It was announced that the next meeting would be held on the 25th inst., when Mr. H. W. Burrows would read a paper on "Sound in its Relation to Buildings."

* The higher scale shall apply to cases relating to lines of frontage, laying out of streets, open spaces about buildings, height of buildings, conversion of buildings into public buildings, and low-lying lands.

† The lower scale shall apply to all other cases.

THE ARCHITECTURAL ASSOCIATION:

THE TECHNICAL TRAINING OF WORKMEN IN THE LONDON BUILDING TRADES.

THE second sitting of the Conference on the Technical Training of Workmen in the London Building Trades, convened by the Architectural Association, was held at 9, Conduit-street, on the 8th inst., Sir A. Blomfield presiding.

The following representatives were present:—Sir A. Blomfield and Mr. E. T. Hall, for the Royal Institute of British Architects; Messrs. E. W. Mountford, W. H. Seth-Smith, F. T. W. Goldsmith, and Owen Fleming, for the Architectural Association; Mr. Mervyn Macartney and Mr. G. G. Frampton, A.R.A., for the Art Workers' Guild; Mr. T. G. Jackson, A.R.A., for the independent London architects; Mr. J. Verdon, for the Building Trades' Federation; Mr. J. V. Eva, for the Operative Bricklayers' Society; Mr. R. Thurston, for the Amalgamated Society of Carpenters and Joiners; Mr. G. Cole, for the National Association of Operative Plasterers; Mr. C. Hill, for the United Operative Plumbers' Association; Mr. J. Thomson, for the Operative Stonemasons' Society; Dr. Garrett, for the Technical Educational Board; Professor Banister Fletcher, for the Carpenters' Company; Mr. W. Grellier, for the Bricklayers' and Tylers' Company; Mr. R. Mitchell, for the Regent-street Polytechnic; Mr. C. T. M. Millis, for the Borough-road Polytechnic; Mr. W. R. Lethaby and Mr. H. R. Taylor, co-opted members; and Mr. Chandler, representing the Free Labour Association.

The Chairman drew the attention of the meeting to the fact that the following resolution was passed at the last sitting of the Conference:—"That this meeting be adjourned, and at its next meeting it discuss what steps can be taken to further technical education."

The Honorary Secretary read letters of apology for non-attendance from Mr. S. J. Bird, Mr. Caröe, General Moberly and Mr. H. W. Burrows.

The Chairman said that as Mr. Bird, the mover of the resolution on the last occasion, was unable to attend, Mr. Mountford, the Vice-Chairman of the Conference, would have something to say.

Mr. E. W. Mountford said that on the last occasion when he occupied the chair, they had a good deal of preliminary work to get through, and hardly approached the actual subject to be dealt with. It appeared to him on thinking the matter over afterwards, that possibly they had commenced the Conference without making sufficient inquiry as to the best manner of meeting the necessities of the case, and he had ventured to invite a few gentlemen to meet at his office. They were favoured with the presence of several representatives of the Trades Unions, and in a perfectly informal manner they discussed what might be done to improve the technical education of workmen. He was very pleased to say that the representatives of the Trades Unions and the architects who were present, were unanimously in favour of, if possible, reviving the old system of apprenticeship, which had almost died out in London, and they had discussed many ways in which this might be brought about. It appeared that at the present time the large majority of workmen had never been apprenticed at all. They had to gain a knowledge of their trade in the best way they could, and it was nearly always done in a very irregular manner, the results often being quite unsatisfactory. The Trades Unions, he understood, were quite of opinion that if possible the old system of apprenticeship should be revived. If it could be insisted upon in some way that workmen must pass through an apprenticeship of at least five years, then if the boy left school, say at the age of thirteen, and was apprenticed for five years, it would bring him nearly up to the age at which he would nominally become a man. It was thought, amongst other things, it would be well if a boy, on leaving school, should not be at once apprenticed to any particular trade, but that, if possible, he should be allowed to work as a sort of odd boy about a builder's yard, or on a building, as an errand-boy, or something of the sort. During these two years he might very well decide as to the trade he would eventually like to follow. That would bring him up to the age of about fifteen, and then five years' apprenticeship would carry him on till twenty, at which time he would be eligible to become a member of the Trades Unions, and probably be a master at his trade. There were many difficulties, however, in the way, and the first which presented itself to him was the necessity for a premium. It was pointed out that most builders insisted on receiving a premium with their apprentices, while the parents of the boys would very often not be in a position to provide this premium. They thought it possible the difficulty might be got over if the wages of the apprentices were fixed at such a low rate that the difference between the wages and the actual value of the work in the last two or three years of thei apprenticeship would in itself compensate for th want of premium. They thought, for instanc that if a boy, during his five years, was paid at the rate of eight, ten, twelve, fourteen, and sixteen shillings a week the difference between that amount and the actual value of his services, in the last two or three years, at any rate, would form a kind of premium. They had discussed amongst other things the great desirability, if such a thing could be found possible, of allowing the apprentices to have one afternoon a week on which to attend technical classes at the Polytechnics or elsewhere, because, although these institutions were exceedingly valuable, it was thought that in practice a boy, who had been at work from six in the morning to five in the evening, could have little inclination to devote his evenings to studying the same kind of work he had been carrying on all day. It was hardly fair to expect a boy of sixteen or seventeen to give up sixteen hours of his day to the work of one particular trade, without any kind of recreation. They were told that at least one firm allowed their apprentices this one afternoon a week for study at the technical schools. He would not at present discuss this matter at greater length, and would only add that they were all unanimous in agreeing that the revival of the old system of apprenticeship was the best thing that could possibly happen. They found in their own calling of architects—that although they might teach young fellows all sorts of good things in the studios and classes of the Association, it was absolutely necessary that these same young men should be articled to an architect in practice, in order to obtain any kind of mastery of the work they would have to go through in after life. He believed some of the gentlemen present would be able to give figures and facts which would support the statement he had made.

The Chairman said they had listened with great pleasure to what Mr. Mountford had told them, though in some points it might suggest debate on matters beyond the scope of the discussion proposed for that evening—namely, what steps it might be desirable to take to assist those bodies already engaged in the technical education of workmen.

Mr. G. Cole (National Association of Operative Plasterers) said that nearly all that had fallen from Mr. Mountford was essential to be carried out, before it could be possible to obtain students for the classes. With regard to plasterers, they found it a mere impossibility to obtain students for the classes already in existence, and the Trade Unions, as the result of a thorough investigation, entailing a considerable amount of expense, had come to the conclusion that, until such times as the conditions under which the craft was carried on were changed, they would never get either students for the classes or even mechanics. Because, even if they were in possession of a highly skilled body of workmen, there was no demand for that skill, for the simple reason, that the majority of the builders in London were entrusting that portion of the craft to men who had no regard whatever as to how the work was done. Further than that, the men who did the work had no facilities at all to offer to an apprentice; they had no standing in the trade. One of the largest jobs in London at the present time was being carried out by a man who was practically a journeyman the other week. There would be some fine work in that building, and if done under different circumstances, a youth would have had some chance of learning something

there; but there would be no youths employed, because the man did not want them, he preferred somebody who was strong, and who had already been taught. Therefore, until such time as there were more facilities for youths to become apprentices to recognised employers, or master craftsmen, he was convinced that, as far as plastering was concerned, they would not get boys into the trade. A great many of them, in fact, were coming to the conclusion that in a short period there would be no plasterers in London, because it was absolutely the fact that no boys were coming into the trade. There were a few boys in the outlying districts being taught the first rudiments of plastering in cottages, and who gradually drifted into the centre of London and got work. These were never efficient workmen, and until such time as there was a system laid down whereby a boy could be apprenticed, the difficulty would not be overcome. His Society had approached the Central Association of Master Plasterers in London on the question, but he did not think they had been treated by that Association with the amount of courtesy they deserved.

Mr. J. Verdon (the Building Trades Federation) said he understood there was a representative of the National Free Labour Association present. He would like to know what trade that gentleman was, and what trade he represented?

The Chairman replied that Mr. Chandler was present as representing the Free Labour Association. He could hardly ask him what trade he was, as he had been invited to attend.

Mr. Chandler said he was present in answer to their invitation. Mr. Coleman, not being well, had asked him to attend.

Mr. Verdon wished to make a statement which would explain their position as members of the Trades Unions. In the first place, if a London mechanic wished to become a member of the Operative Bricklayers, Carpenters, or other Trade Unions, he had to be proposed and seconded by men who were members in such Societies, and who could guarantee that he was a man capable of earning his living at his particular trade. In order to ascertain the *bona fides* of the Free Labour Association, he had felt it his duty to make certain inquiries, and to get at certain facts. He had sent a labourer the day before down to the National Free Labour Association, who had registered him as a carpenter and joiner. No questions were asked of the man, who had paid nothing for registration. It seemed to him, therefore, that a costermonger might go there and be registered as a plumber and another as a carpenter. Whatever their individual opinions might be, with regard to the business before them, their presence would become intolerable in face of the information they had at command, and their members would not tolerate for a moment their sitting in company with representatives of that Association. They had had a consultation upon the question, and the delegates had made up their minds that however willing and anxious they might be that something should come out of the Conference, which would be for the mutual benefit of the architects, masters, and workmen, under the present circumstances it was absolutely impossible for them to retain their seats on the Conference when representatives of such a kind were allowed to be present.

Mr. Mountford, as President of the Architectural Association, which had sent out the invitations, said they had no desire to discuss Trades Unionism in any way whatever. He would moreover ask Mr. Verdon, how the presence of one man could possibly interfere with their discussion. It was hardly fair to spring this point upon them without a proper notice, because Mr. Verdon was aware that they had invited a representative of the Free Labour Association to be present at the last meeting, although no one had attended. It would, therefore, have been fairer to have given them some formal notice of the point, and he would appeal to Mr. Verdon to let the matter go over. They were there in the character of hosts, and could not possibly, even if they were desirous of doing so, ask any gentleman to retire whom they had invited to be present.

Mr. Chandler remarked that he had no desire to disturb the harmony of the meeting, and in fact he would be ready to withdraw if the chairman desired it.

The Chairman asked the meeting to go back to the resolution before them. Any disputes between gentlemen invited to attend the Conference, and matters not bearing on the resolution, he should have to rule out of order.

Mr. Verdon said that when the invitation came through the trades, it was understood that there should be one representative plasterer, one bricklayer, one mason, and so on. He himself did not represent a trade, but the Building Trades Federation, and if Mr. Chandler would withdraw he would be willing to do the same, leaving the delegates of the Trades to settle the matter.

Mr. Seth Smith believed that a considerable amount of the responsibility of inviting a representative of the Free Labour Association rested with him. It seemed, as two sides existed to the industry, it was fair that the Free Labour Association should have some representative present at the Conference.

Mr. R. Thurston said that as representing the Carpenters' Society they were interested in the question of technical education, and the raising of the standard of work. He put it to them, however, how could the members present sit with a gentleman representing an Association which would willingly register a labourer as a carpenter? His instructions were that unless *bonâ-fide* representatives were present to discuss this question he would be unable to retain his seat on the Conference.

Mr. Cole expressed the same feeling.

Mr. E. T. Hall remarked that the question before the meeting was not one of the Trade Unionists or the Free Labour Association, but a desire to see tradesmen improved in education, and to get English craftsmen to be the first in the field. Their desire had been that they should lay their heads together and see what could be done for the education of young men. There was no trades unionism amongst the architects, and if the trades unionists present could not remain as members of a congress in which a non-unionist was present, it would seem to follow that they could not work with architects, who were practically in the same position as members of the Free Labour Association. He hoped they would let the incident pass and give the congress the benefit of their advice on the question before them.

Mr. Chandler said that although such a registration might have taken place as had been mentioned, they would soon find out what the man could do. He had come there simply to listen, because he had been asked to do so, and he did not see why the presence of a simple individual like himself should have so terrible an effect on the nerves of the Trade Unionists that they should be unable to remain.

The Chairman could not allow this discussion to go on, as it was likely to become interminable. At the same time he could not call upon a gentleman who had been invited to withdraw. He hoped the instructions of the delegates were wide enough to allow the discussion to go on, quite apart from the point that had been raised.

Mr. Chandler again intimated that he was ready to leave if the Chairman desired it.

The Chairman said that could not be done, and the representatives of the Trade Unions then left the room.

Mr. Mountford remarked that there was no other way in which the Chairman could have acted. He regretted that the Trade Union representatives had thought it necessary to withdraw. Acting under instructions from their organisations they had no other alternative, but the question of trades unionism *versus* free labour could never arise at this Conference. These gentlemen had met at his office, and had discussed the matter in the most friendly way, the result of the discussion having been as edifying for the architects as for the workmen. However, the best thing to do would be to continue the discussion in the absence of those gentlemen, and on some future occasion they might find it possible to attend again.

Mr. Owen Fleming said he had been connected with the movement from the beginning, and would be glad to go on with the discussion. It seemed to him, however, that it would be futile; it was no use having people representing only one side of the question, and without the presence of the workmen they could not do anything. He, therefore, considered the best thing would be to adjourn the sitting pending negotiations with the representatives of the trade societies.

Mr. Hall said that they had heard from Mr. Mountford the views which the gentlemen who had just retired had taken, and therefore Mr. Mountford had been the spokesman of the workmen. The meeting, however, had a definite proposition before them which deserved the greatest consideration. Had there been present some representatives of the building trade, they could have gone on with the discussion with some advantage, and he thought they might even still discuss the matter. He believed every architect in London had an earnest desire to see the apprenticeship movement revived, as that was a system which of necessity must turn out better men than those who were now coming up. He did not mean to say that they could not get good work done in London, because it was notorious that excellent work was done there, but everyone must have observed the casual way in which the young fellows came out. In fact, it was only after earning wages that they got to be good workmen when about thirty years of age or beyond. The proposal was that there should be an apprenticeship for five years, that the apprentice should be paid small wages, and that being tied down for a certain period he should by his services, which would become valuable at the end of three years, as it were, pay the premium rather than pay it down at once. One of the difficulties the masters might raise was that, whereas if they had the premium paid to them there was a certain security that the apprentice would serve his time; if he paid no premium, the moment he became a competent workman he might leave, and the employer would not get the benefit of his two last years. The apprentice might retire from his indentures, and it would be exceedingly difficult to get the courts now-a-days to compel him to remain for the full term. He doubted if, in the present state of feeling of society, any magistrate would commit a young man to prison for breach of his indentures. The builder would have to bring an action against the youth for damages, which would be useless, because the young man would have no money, and that was the practical difficulty of the scheme Mr. Mountford had propounded. In the one case there was security in the hand of the builder that the young man would serve his term, while in the case of the suggestion now before them there was no security; possibly, however, by the aid of the guarantee societies the difficulty might be got over. With regard to young men having one afternoon a-week off to attend technical classes, he believed that the Technical Institutes would be only too pleased to open classes whenever a sufficient number of students presented themselves to pay the working expenses. So as to prevent any disorganisation of builders' work, a certain number of apprentices might get off one day and a certain number another day. Three or four years ago the Royal Institute of British Architects published a form of articles of pupilage for young architects, in which there was a condition that the master should give his pupils facilities for attending architectural lectures and classes, therefore they had that as a precedent to lay before the Builders' Society with some weight.

Mr. Millis believed the question was not altogether a matter of premium, but whether employers would take apprentices or not. He believed there were a number of charitable institutions at the present time which had funds they were willing to devote towards paying the premiums of apprentices; but in many trades there had been difficulty in finding masters who would take apprentices. Employers of labour in many industries had stated openly that they were perfectly willing that lads should come into their works, and pick up the trade, but they would not be bothered by having indentured apprentices. Until employers could be got to look at the question of apprenticeship from a different point of view, it was scarcely necessary to consider the question of premium. With regard to the lads being allowed a half-day weekly to attend classes, a more reasonable suggestion would be to permit them to leave off at 4·30 or 5 o'clock and attend classes at those hours on two days a week.

Mr. Hall remarked that they now left off at five o'clock in the building trade.

Mr. Millis, continuing, said that no doubt the London Polytechnics, with the funds they had, would be ready to place their laboratories and workshops at the disposal of young men one day a week, and it would not be a question as to whether the classes were even self-supporting. None of their classes were self-supporting at the present time, and they did not expect them to be so.

Dr. Garrett stated that apprentices were largely employed in the north-country engineering works, and also by the great railway companies, and in some cases the employers paid their class fees. That there were some satisfactory students might be proved by anyone who would take the trouble to visit some of the workshops of the technical institutions, such as the brick-cutting work at Battersea Polytechnic. The Technical Education Board had, during the last few weeks, been occupied in making a somewhat exhaustive inquiry amongst the employers of labour in the building trades, with reference to the question of apprenticeship, and he hoped that during next month the results would be printed, and available at any rate for

private circulation. He was not prepared to say that these results had been altogether satisfactory, as the masters did not, so far as inquiries had gone, show themselves very keen upon taking apprentices. One of the chief objections was that an apprentice would take up the space in a workshop which could be more profitably occupied by a thoroughly qualified workman, especially in London, where the rents were so high. He was afraid a premium would not get over the difficulty, unless it was fixed at a higher sum than public bodies were prepared to pay. If reasonable premiums could be accepted, he did not think there would be so much difficulty in finding the premiums as some people thought.

Mr. Seth Smith believed there were schools of apprenticeship in France and in Germany, the aim of which was to supplement the rather decaying system of apprenticeship, and these schools were largely subsidised by the Government. It would be interesting if they could have some information on that subject.

Professor Banister Fletcher said that five years ago he made many inquiries on behalf of the Carpenters' Company regarding apprenticeships, and, as the result of these inquiries, they had determined they could not force apprenticeships at the present time. With regard to the building trade, there seemed to be an absolute difficulty in the matter. One difficulty that had not been alluded to was that, in the present day, the class of boy who was apprenticed seemed by his mere apprenticeship to lose his desire to work. The working classes seemed to think that the master was getting more out of his apprenticeships than he ought, and that was one of the causes why masters did not care to have the boys. One reason was the difficulty of having sufficient accommodation for boys, while they were improving, and another reason why apprenticeships had died out in London was, that masters could get young men from the country, where they had learned a good general knowledge of the trade, and they preferred to have such workmen rather than to train them in their own shops. Then the speculative builder could take in boys, who could do the work well enough for them, and they paid, he was informed, better wages than builders did who had taken apprentices. They had also the greater freedom of leaving when they liked. Boys did not like to be apprentices for a lengthy term. He believed the only system to be pursued to raise the standard of the work produced by British workmen was by evening handicraft schools like those the Associated City Companies had established at Great Titchfield-street.

After some further discussion it was decided to adjourn the meeting.

On the motion of Mr. Mountford, a cordial vote of thanks was passed to Sir Arthur Blomfield for presiding, and the proceedings terminated.

ARCHITECTURAL ASSOCIATION SPRING VISITS:

THE ORATORY, SOUTH KENSINGTON.

THE fourth visit to works in progress was paid on Saturday last to the Oratory at South Kensington, to view the completion of the front and the erection of the outer dome and lantern. The visit was arranged by the Hon. A. McGarel-Hogg, one of the visits' sub-committee. The completion of the front consists in the building of the portico of coupled Ionic columns, with a vestibule on either side, forming the aisle entrances to the church, and also the lower portions of the twin southern towers, to be erected at a future date. The baptistery is situated in part of the lower portion of the eastern tower, and contains a very fine font of many coloured marbles—a copy of one from a church in Brescia. The whole of the front is erected in Portland stone from the Whitbed. Mr. Shaw, the clerk of works, explained the drawings, and conducted the party over the building.

The façade has been detailed by Mr. Shaw from the original design of Mr. Gribble. The central gable will be crowned by a figure of the Virgin, 9 ft. in height, by Mr. Collett, who has worked at St. Paul's under Mr. Penrose. Proceeding through the church, Mr. Shaw explained the general scheme of the gorgeous coloured marbles to the various altars: some had been designed by Mr. Gribble, and one had been brought from Brescia, and is an exceedingly fine specimen of the rich Later Renaissance. The members then mounted the west circular staircase to the dome. The inner dome, which is constructed in concrete, has been built from the beginning, but an eye is now to be opened in its centre and a passage formed round it. The present work consists in the addition of the outer dome and lantern. This, we believe, is the gift of an anonymous donor, who, however, stipulated that it should be carried out by his own architect, taking by this action, surely, largely from the value of the gift. Mr. Sherrin is the architect of this portion, and he has departed considerably from the original architect's design, which embodied a stone lantern as the crowning feature. The whole of this outer dome is constructed with a steel framework by Messrs. Westwood, of Millwall. The diameter is 58 ft., the height to the top of the ring-girder supporting the lantern is 37 ft. This ring-girder is about 15 ft. in diameter, and from it to the top of the cross is 47 ft., bringing up the whole height of the dome and lantern to 84 ft., the total height from the ground being 200 ft. The ribs of the framework consist of eight principal trellis-girders bent to an elliptical curve, and having two intermediate smaller girders between each. The main girders are connected horizontally by three continuous circular purlins, forming the whole into one rigid mass. The lowest of these is in tension, the middle is neutral, and the upper is in compression. A tie-ring further connects the principal ribs at the base by surrounding them and preventing them from spreading. Following the curve of the dome are horizontal wood rafters planed to the curve out of 9-in. by 3-in. stuff and bolted to the girders. These are covered with $\frac{3}{4}$-in. boarding in two thicknesses laid diagonally, in opposite directions, and covered with 7 lbs. lead; lead of 8 lbs. being used for projecting features. The ball and cross are to be covered with copper. The wood lead-covered lantern is supported on eight posts 10 in. by 6 in., bolted to the circular ring at the top of the outer dome, &c., and further secured by double steel angle struts from the main ribs to a circular girder 7 ft. 6 in. above this main ring, thus giving a leverage of about 10 ft. 6 in. The leadwork is laid round the main girders by means of $4\frac{1}{2}$-in. breaks. A detailed examination of the working drawings followed, and a vote of thanks was unanimously accorded to Mr. Shaw for his kindness in conducting the party.

ARCHITECTS' BENEVOLENT SOCIETY.

THE annual general meeting of the subscribers and donors to the fund of this Society was held on Wednesday afternoon in the Council Room of the Royal Institute of British Architects, Mr. F. C. Penrose, F.R.S., President, occupying the chair.

The Chairman, in opening the proceedings, briefly referred to the loss which the Society had sustained in the death of Mr. Ewan Christian, who, though advanced in years at the time of his death, was full of work and energy.

The minutes of the last meeting having been read and confirmed, Mr. Percivall Currey, hon. secretary, read the following report of the Council:—

"It is with more than ordinary satisfaction that the Council of the Architects' Benevolent Society have the pleasure of submitting their forty-fifth annual report. During the past year the Society has attained its greatest degree of financial prosperity, both with regard to capital and income, since its foundation, and with the larger means at its command its sphere of usefulness has been correspondingly extended.

As a special effort was made by the Honorary Treasurer in 1893, with favourable results, to increase the capital of the Society by donations, it was not expected that a large amount would be realised in this direction last year. The actual amount received in donations was 85*l.* 14s., to which Mr. W. Willmer Pocock contributed the handsome sum of 50*l.*, and Mr. William Harrison, Mr. Ernest George, and Mr. Maurice Hulbert, have contributed 5*l.* 5s. each. Mr. Arthur B. Plummer (who, as Local Honorary Secretary at Newcastle-on-Tyne, has taken a diligent interest in the welfare of the Society) has contributed 5*l.*

In regard to subscriptions an important advance has been made. Including the 19*l.* 19s., which in 1893 were paid in advance for subscriptions, and which appeared in the income account issued for that year, the total amount of subscriptions received for 1894 was 405*l.* 19s. A further sum of 25*l.* 4s. was received for arrears which, in many instances, covered the subscribers' arrears for a period of three or four years, and it is cordially hoped that the few subscribers whose names appear on the books of the Society with outstanding amounts, will follow such a good example and clear off their arrears.

The Council have great pleasure in acknowledging the deep indebtedness of the Society to the unceasing and active interest which the honorary treasurer (Mr. Arthur Cates) takes in its affairs. Since 1890, when Mr. Cates undertook the office, the Society's invested capital has increased from 7,026*l.* 14s. 10d. to 9,363*l.* 2s. 10d., and the income derived from subscriptions has increased from 308*l.* 12s. to 405*l.* 19s.; and the Council desire to record their recognition of the fact that this notable advance in the financial stability is mainly attributable to Mr. Cates's untiring effort and zeal in behalf of the unfortunate members of the architectural profession and their families who are unavoidably left in necessitous circumstances.

It should be added that, in addition to the amount of capital stated above, 50*l.* were transferred from Income Account to Capital Account, with the object of purchasing 100*l.* Caledonian Railway 4 per cent. Debenture Stock, but the purchase was not completed by the end of the financial year. The actual amount, therefore, in investments and cash standing at the credit of Capital Account on 31st December was 9,532*l.* 11s. 6d.

Six meetings have been held by the Council during the past official year. One pension of 30*l.* and two pensions of 20*l.* have been paid, and the sum of 519*l.* (as against 397*l.* in 1893), being, with one exception, the largest amount ever paid in one year by the Society to applicants for relief, has been distributed among thirty-three persons. A pension of 20*l.* became vacant through death, and the vacancy was duly announced and applications invited in the *Builder*, with the result that the pension was awarded to an aged architect in straitened circumstances. In a few instances the Council have come to the aid of younger architects who have been placed in temporary difficulty, through ill-health or some othercause, with the happiest results.

The Council have to record with great regret the decease of Lt.-Colonel Haywood, Mr. Edward Clark, Mr. H. Francis, Mr. Samuel Hill, Mr. James Murgatroyd, and Mr. Wyatt Papworth, all of whom were contributors to the Society.

The following gentlemen, having served three years, retire by rotation from the Council, namely:—Mr. W. Hilton Nash, Mr. J. G. Finch Noyes, Mr. Andrew Oliver, Mr. Charles J. Shoppee, and Mr. Arthur Ashbridge. To fill the vacancies caused by these retirements, and by the resignation of Mr. John H. Christian, the Council have the pleasure to nominate Mr. Thomas Harris, Mr. H. C. Boyes, Mr. W. Kidner, Mr. G. Scamell, Mr. Zephaniah King, and Mr. George Inskipp, all of whom have consented to serve if elected.

The balance-sheet and income account for the year ended December 31, 1894, duly audited by Mr. Thomas Harris and Mr. George Scamell, are herewith submitted.

The Council, in closing this report, desire to express the obligations of the Society to the Royal Institute of British Architects for the use of rooms in which to hold the meetings, to the secretary (Mr. William H. White), and to the officers, whose invariably helpful courtesy has greatly facilitated the prompt and economical administration of the Society's business."

Mr. Currey also read, in the unavoidable absence of the hon. treasurer, Mr. Arthur Cates, the statement of accounts and balance-sheet, and in doing so he mentioned that a donation of seven guineas had been received from Mr. W. Emerson and one guinea from a new subscriber, Mr. H. G. Ibberson.

The President then moved that the report and balance-sheet be adopted. This having been agreed to,

Mr. G. Scamell moved and Mr. Percy Hunter seconded a vote of thanks to the outgoing members of the Council—viz., Mr. W. Hilton Nash, Mr. J. G. Finch Noyes, Mr. Andrew Oliver, Mr. Charles J. Shoppee, and Mr. Arthur Ashbridge. The motion having been carried,

Mr. Shoppee moved, and Mr. H. L. Florence seconded the following resolution, which was agreed to:—"That the Council for the year 1895-96 be elected as follows: President, the President of the R.I.B.A., Mr. Thomas Blashill, Mr. Sydney Smirke, Mr. William Grellier, Mr. E. B. I'Anson, Mr. E. H. Martineau, Mr. T. M. Rickman, Mr. R. St. Aubyn Roumieu, Mr. J. T. Wimperis, Mr. Thomas Harris, Mr. H. C. Boyes, Mr. W. Kidner, Mr. G. Scamell, Mr. Zephaniah King and Mr. George Inskipp."

Mr. Shoppee also proposed "that Mr. Arthur Cates be re-elected hon. treasurer for the year 1895-6, and that a vote of thanks be passed to him for his services during the past year."

Mr. E. B. I'Anson seconded, and the motion was agreed to.

A vote of thanks to the auditors, Messrs. T. Harris and G. Scamell, having been agreed to, Messrs. W. Hilton Nash and J. G. Finch Noyes were elected auditors for the ensuing year.

On the motion of Mr. D. Brandon, seconded by Mr. S. Smirke, Mr. Percivall Currey was re-elected hon. secretary for the year 1895-96, and a vote of thanks was passed to him for his services during the past year.

Mr. Currey proposed, and Mr. I'Anson seconded, a vote of thanks to the Royal Institute of British Architects for affording office accommodation to the society.

This was agreed to, and the Chairman (Mr. Penrose) replied on behalf of the Institute.

On the motion of Mr. Smirke, seconded by Mr. Shoppee, a vote of thanks was accorded to the President for presiding.

The Chairman briefly replied, and the meeting terminated.

CARPENTERS' HALL LECTURES.

"ORIENTAL ARCHITECTURE."

THE first of a course of five lectures on matters connected with building, arranged by the Carpenters' Company, was delivered on the 6th inst. by Professor T. Roger Smith, F.R.I.B.A, who took for his subject "Oriental Architecture."

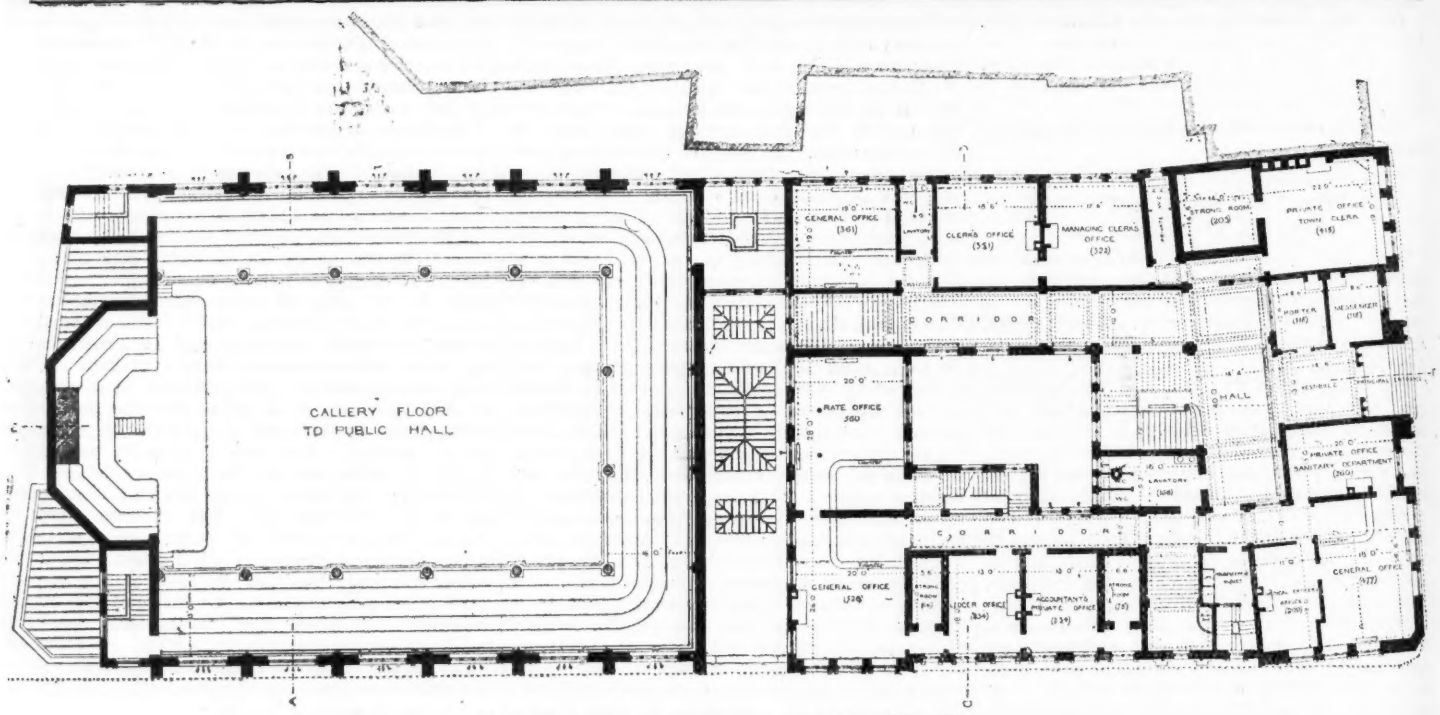
The lecturer, briefly introduced by the chairman, the Master of the Company, said that among the things that differed, as between the Oriental and the European, were the arts, especially architecture, and as there were great excellencies as well as—from the European point of view—novelties in Oriental buildings, it had seemed to him worth the while of those present to see a few photographs of some of them, and to hear some account of their architectural character. They all knew something of the fine works of art of the small sort that came from Eastern countries; but Asia was far oft, and buildings were not brought over. When travellers went there many new objects combined to attract their notice, so that architecture was less considered, more seldom described, and more rarely photographed or illustrated than scenery, costumes, and the strange manners and customs of a new continent. There was, however, a most extensive and remarkable series of buildings in the principal eastern countries, namely Egypt, Persia, India, China, Burma, and Japan. Having briefly given his reasons for chiefly selecting buildings in India, the Professor said that in all the countries he had named the buildings differed from any in Europe. They differed extremely from one another, but they also had a something in common which they agreed to call Oriental character. Three conditions of life which were all apt to exert a great influence upon architecture were very different in Asia from the same conditions as they knew them in Europe. These were climate, race, and religion. They were dealing with buildings in a hot climate, and a climate where sunshine was far brighter than in Europe. Buildings in the East accordingly had small openings where lighting was concerned, but very large ones where it was a question of admitting air, and Eastern roofs were mostly flat. As artists, most Asiatic races had a much greater love of ornament and a much keener appreciation of colour than Europeans, but less sense of dignity or sobriety, and all this was reflected in their buildings. All the best buildings of nearly all races were religious buildings. In Europe there were many points of resemblance between the Christian churches. In the East a vast proportion of the religious buildings were Pagan, and another large proportion were Mahommedan, so that temples or mosques, not churches, were built there. There thus existed good reasons why Eastern buildings should differ from Western ones. Turning to the architecture of India, the lecturer said that country possessed architecture and sculpture before the date when Cæsar was fighting our rude forefathers, and it had in some sort preserved them ever since. Being a country of enormous extent and very ancient civilisation, there were naturally a great many ancient cities in India, not a few of them adorned by palaces or by strongholds, but all of them by religious buildings. Superstition and religion were inextricably interwoven with every part of each man's daily life in that country, so it was not surprising that temples, shrines, or mosques, and tombs should abound. Many of the buildings were extensive or were grouped together in vast series; all of them were elaborate, and though to European taste there was something strange and uncongenial in many of them, and here and there perhaps even something repulsive, there were few which were not curious, many that were wonderful, and not a few of which the beauty only appeared to be enhanced by the strangeness. Four forms of religious belief had been prominent in India. The remains of the ancient Buddhist monuments in India were of great interest, but they included extremely few actual buildings, as the temples and monasteries, except such as were artificially formed—caves dug out of the solid rock—had disappeared. After a brief reference to the Jaina religion and to its temples being in many respects dissimilar to those of the Buddhists; to the Brahminical or Hindu worship being carried on in innumerable temples, with all kinds of dependencies; and to the Mahommedan religion, the Professor said the most prominent characteristic of Indian architecture was the profusion and endless repetition of ornament. It began with the earliest Buddhist remains. and lasted to the present day. In some of the Mahommedan buildings, it was true, they sometimes found contrasts between a bit of plain wall and the enriched features built into it. Such contrasts were indispensable if the enriched work was really to look rich, and they were used with great skill by Saracenic architects in more westerly countries. But the idea of the Indian artist had mostly been the false notion that the more profuse the ornament the more ornamental the building became; and the walls, roof, pillars, and, in fact, every part, inside and out, were usually covered by carved or embossed, or sometimes painted or inlaid enrichment. The next feature was the prominence of high roofs, which were more conspicuous than in any European style. A tall, pyramidal structure surmounted the gateway that gave access to a temple enclosure, and another crowned the temple itself. They varied in form, in richness, and in number—in the south they were pyramidal, and in the north gourd-shaped—but they were undoubtedly the most striking and the most peculiar features of Hindu architecture. They were not reproduced in Mahommedan buildings. A Mahommedan tomb always, and a mosque sometimes, was surmounted by a dome, or by many domes, but never by a high roof. A third feature was a bracket cut in stone or wood, which was continually met with in the interior of Indian buildings. This was usually of a shape which suggested that to be of any service in assisting to carry a superincumbent weight it ought to be of tougher material than stone. A fourth feature, occurring both in Hindu and Mahommedan architecture, was the use of slabs of pierced stone for windows, and these were often of the greatest possible beauty. The Bhuddist monuments of India were of great interest and great antiquity, and on them the Indian love of profuse ornament was remarkably shown. Among the oldest of these monuments were what was known as topes or stupas, being places for the display or deposits of relics. The most important ones were solid hemispherical mounds of great size, with a small structure on the very summit, and round the base of the mound there was a double fence of posts and rails of timber,—and in later years of stone—protecting a procession-path that encircled the mound, and to which access was gained through portals formed of the same materials. Photographs were then thrown on the screen illustrating two such topes, and Professor Smith drew particular attention to the profuse stone-carving shown thereon. Proceeding with his remarks, he described a Hindu temple of the first rank, which, he said, was a large group of structures in a vast precinct or enclosed space. The exterior of everything was made elaborate, but it was chiefly the sanctuary and its roof, the porch and the gateway, upon which the greatest degree of ornament was lavished. He referred to many-storied southern temples being "alive with sculpture." In more than one of the large temples, halls of 1,000 columns occurred. and at least one possessed pillared corridors 700 feet long. Orissa was the province where the northern style was best seen. Here the high roof was no longer a pyramid, but was a lofty structure of a gourd-like outline known sometimes as an Orissa dome. Every trace of the arrangement in stories conspicuous in the south had disappeared, and the ornamentation, the character of which was extremely different, now formed ribs from base to summit. A few southern Hindu temples, and one or two northern ones were afterwards shown. The lecturer pointed to the infinite profusion of carving, and said that in its way it was artistic and effective, but the amount of labour expended must be almost incalculable. Continuing, he said they now came to what to his mind was the most interesting part of the architecture of India. The Mahommedan religion, with all its failings, was a far better religion than the Hindu, and it had been associated with a higher architectural style, a style which was, perhaps, seen at its very best in Egypt, but which in India flourished extremely. Mosques, tombs, and palaces, as well as minor works, filled the Mahommedan cities of India with objects of interest and beauty, and the finest were at Delhi, Agra and Ahmedabad. One leading peculiarity of Mahommedan architecture everywhere was that all representations of living things were strictly forbidden as being idolatrous, so that the ornaments had to be foliage or geometrical patterns and coloured ornaments. These—the geometrical forms especially—had been brought to a very great pitch of perfection by the Arabs, the Egyptians, and the Indians. The Hindu architecture was swarming, so to speak, with life, and yet the Mahommedans, who had to forego this capital mode of ornamenting buildings, surpassed the Hindus. Professor Smith described at length the mosques used by the Mahommedans, and had several pictures of them thrown upon the screen. He drew particular attention to the detail work, especially in the case of what he described as exquisite panels of scroll work of conventional foliage, thoroughly Saracenic, and yet harmonising well with all around them. One of the most brilliant and the best-preserved specimens of Mahommedan art in India was the Taj at Agra, built as his own burial-place by Shah Jehan, 1628-58. This was a splendid domed tomb, of white marble, built on a platform, overlooking the river on one side and a lovely garden on the other side. The Professor held this to be the climax of perhaps the most artistic and most effective of all the architectural styles that had flourished in India during the 2,000 years over which her architectural history extended. A photograph of this and other buildings brought the lecture to a close.

On the motion of the Chairman, a hearty vote of thanks was accorded to Professor Roger Smith or his very interesting lecture.

ARCHITECTURAL SOCIETIES.

CARLISLE ARCHITECTURAL, ENGINEERING, AND SURVEYING SOCIETY.—On the 6th inst. a meeting of this Society was held, when Mr. Glover, Assistant-manager of the Carlisle Gas Works, read a paper on "Some Modern Methods of Lighting Compared." Starting with a very brief history of the origin and extent of gas lighting, the lecturer defined the necessary qualities of artificial light to be as follows:—Steadiness, reliability, convenience, safety, and freedom from injurious properties likely to cause air pollution or injury to health. A table shown demonstrated that all illuminants, with the exception of the electric light, caused air pollution, and that, contrary to ideas prevalent in many persons' minds, gas caused the formation of less carbonic acid than either oil or any description of candles. The propriety of enriching a poor gas of, say, 15 c.p. to 19 c.p. by means of cannel coal-gas, costing 1½d. per 1,000 cubic ft., was questionable, but with enrichment by means of oil-gas at ½d. per 1,000 cubic ft., there could be no doubt of the wisdom of such a course. The importance of good fittings was shown in a striking way experimentally, and the desiderata for a good burner were enumerated, attention being bestowed upon the use and advantages of governors, fixing these on the burners themselves being preferable to fixing one governor close to the meter, as in the former manner the advantages of high pressure to stoves, &c., might be realised. The regenerative light was then described, together with the latest invention in incandescent gas-lighting, "The Welsbach," which the lecturer considered one of the greatest advances made in the science of gas-lighting, to popularise its use, and to compete successfully with the electric light. The use of petroleum oil as an illuminant was then touched upon, and finally the electric light was considered, its weak points being the loss that occurs in the conversion of coal energy into electric energy, and in the distribution of the two illuminants, the loss in gas distribution being from 4 per cent. to 10 per cent., while in electricity the leakage sometimes amounted to 40 per cent. The failure from an economical point of view of accumulators also militated against the success of electricity, though the lecturer expected to see further strides made in the progress of the science in a few years. The lecture was illustrated by many drawings, diagrams, and specimens of lamps, burners, meters, &c.

GLASGOW ARCHITECTURAL ASSOCIATION.—The annual business meeting of this Association was held on the 5th inst., in the Rooms, 114 West Campbell-street, the President (Mr. A. N Paterson) in the chair. The seventeenth annual report, which was read by Mr. W. R. Watson (Secretary), narrated the work of the Association during the past session. Memorials, it was stated, had been addressed by the Association to the Town Council relative to the proposed removal of the Tron steeple, and to Her Majesty's Office of Works with reference to the repairs in progress at the cathedral. The most noteworthy event of



Plan of Design for Darlington Municipal Buildings.

the session had been the successful arrangement of a scheme of co-operation with the Glasgow Institute of Architects for the acquirement of premises to be jointly occupied by the two societies. Owing to the difficulty of finding suitable accommodation, the arrangement was deferred in the meantime. The Association Travelling Studentship, of the value of ten guineas, had been awarded, after a close competition, to Mr. George Gunn, member. Mr. Fraser (hon. treasurer) submitted the financial statement, after which the report was approved of. The following office-bearers were elected for the ensuing session:—Honorary President, Mr. Malcolm Stark, jun.; President, Mr. Alex. N. Paterson; Vice-President, Mr. Wm. Tait Conner; Secretary, Mr. Walter R. Watson; Assistant Secretary, Mr. Hugh Dale; Treasurer, Mr. George Hill; Librarian, Mr. Alex. McGibbon; General Committee: Messrs. Wm. J. Anderson, George Copland, Wm. Fraser, Robert J. Gildard.

ARCHITECTURAL SECTION, GLASGOW PHILOSOPHICAL SOCIETY.—The eighth ordinary meeting of the Glasgow Philosophical Society was held on the 6th inst., conjointly with the Architectural Section of the society, when Colonel Robert W. Edis, F.S.A., F.R.I.B.A., gave an address on "Internal Arrangement and Decorative Treatment of Town Houses."

EDINBURGH ARCHITECTURAL ASSOCIATION.—The Edinburgh Architectural Association met on the 6th inst. in the Royal Institution, Mr. W. W. Robertson presiding. After the transaction of some formal business, Mr. A. Hunter Crawford read a paper on "The Suburban House." We were leaving behind us, said the lecturer, the idea that the portico of a Greek temple might be adapted to the porch of a suburban house, and we even thought now that the perfect propriety and respectability of Newington might be improved upon. The typical plan of the builder was inconvenient, unsatisfactory, and commonplace. It was awkward without quaintness, and externally lacking in character. A well-designed house was homelike from the outside, convenient in its arrangements, and interesting in its features. A good plan greatly depended on the size and arrangement of the hall and staircase, on the pantry and its relation to the dining-room, kitchen, and entrance, and on the limited space wasted in passages. The lecturer illustrated by limelight views good and bad types of plans, and then proceeded to contrast stone and brick houses, advocating a freer use of brighter and warmer materials. Characteristic work by Messrs. R. Norman Shaw, R.A.; George Sherrin, Ernest George and Peto, C. F. A. Voysey, Ernest Newton, E. J. May, and other architects was shown on the screen. The lecturer then referred to varied treatments of staircases, bedrooms, and ingle-nooks, and closed his paper by expressing the wish that greater attention be given to the design of our houses, more particularly the smaller ones, and that Edinburgh might not only be noted for her beautiful situation, but also for her charming suburbs.

Illustrations.

COMPETITION DESIGN FOR DARLINGTON MUNICIPAL B UILD ING

AS we are publishing in this number the accepted design for a new vestry hall, we couple with it one or two other designs of the same class, comparison of architectural treatment for buildings of a similar class being often interesting and useful.

Mr. Briggs' competition design for the Darlington municipal buildings, as a design made from "classic" materials, it has considerable originality combined with refinement and repose of effect, and is noticeable also as an attempt to treat municipal buildings without the now almost inevitable tower.

The fall of the ground was proposed to be utilised so as to get the floor of the public hall on what is the basement level of the other portion of the building.

The three gables in the entrance front do not seem quite sufficiently expressive of the actual facts of the plan, and it might, perhaps, have been better to emphasise and raise the central projection, as marking the entrance, though it must be admitted that this would have somewhat altered the general character evidently aimed at in the design. The treatment of the small partially rusticated order in the upper story is graceful and original.

The building was intended to be of brick faced with Dunhouse stone. The architect's estimated cost for it was 29,955*l*.

DESIGN FOR TECHNICAL INSTITUTE, LEYTON.

THE drawing of this design, by Mr. F. H. Tulloch, was exhibited at the last Royal Academy Exhibition, and from the "Royal Academy Catalogue" we took the title on the plate, "New Public Offices and Technical Institute, Leyton." It was only after the lithograph was nearly printed off that we learned from the architect that this was a competition design only, not carried out. Had we known this sooner, we should of course have put the title on the plate so as to convey the fact, though the question does not affect the interest of the design in itself. We may say that this is not the first time that we have known of mistakes and misapprehensions arising from a drawing which was in fact a competion design only, being sent to the Academy with a title conveying the idea that it represented the building that was being, or was to be, carried out. It would be much better to avoid this, and to send a drawing in as "competition design" when that is its real status; otherwise mistakes occur, and the actual selected architect may have reason to complain.

We subjoin the plan of the building as intended by the architect, which sufficiently explains the design.

ROTHERHITHE TOWN HALL.

THE most important feature of this competition was to provide the accommodation required by the conditions for the limited sum of 15,000*l*. The sizes of the offices were left to the discretion of the competitors, and the selected design provides, in every department, the requisite space for the convenient and efficient transaction of the business in this parish, as well as a Public Hall of sufficient area for public assemblies.

The administrative part of the building is kept quite distinct from the Public Hall, as the former will be in daily use, whereas the occupation of the latter will only be occasional. This permits of considerable economy in the working of the building, and allows the public hall to be placed on the ground floor, so as to obtain ample and convenient exits.

The Vestry Hall is placed on the first floor, facing Lower-road, and the Committee-room (also to be used as a Coroner's Court), cloak, waiting, and retiring-rooms are adjacent.

The corridors and vestibules are to have mosaic paving, and fireproof floors are provided to the offices.

The entrance from Neptune-street gives access for the public to the Coroner's Court on first floor and to the public gallery to Vestry Hall. It is also for the use of the caretaker, whose apartments are placed on the second floor.

The main façades are to be faced with red bricks and Portland stone, and the roofs covered with green slates.

Special attention has been given to the lighting, heating, and ventilation of the building, the heating being upon the low-pressure hot water system with radiators.

The lights of the adjoining owners have been respected, and the London County Council requirements have been fully satisfied.

The Vestry propose to omit the corridor shown round three sides of the Public Hall in order to give more seating accommodation, and they have obtained permission for an advanced line of frontage in Moodkee-street, thus enabling the design of this front to be considerably improved.

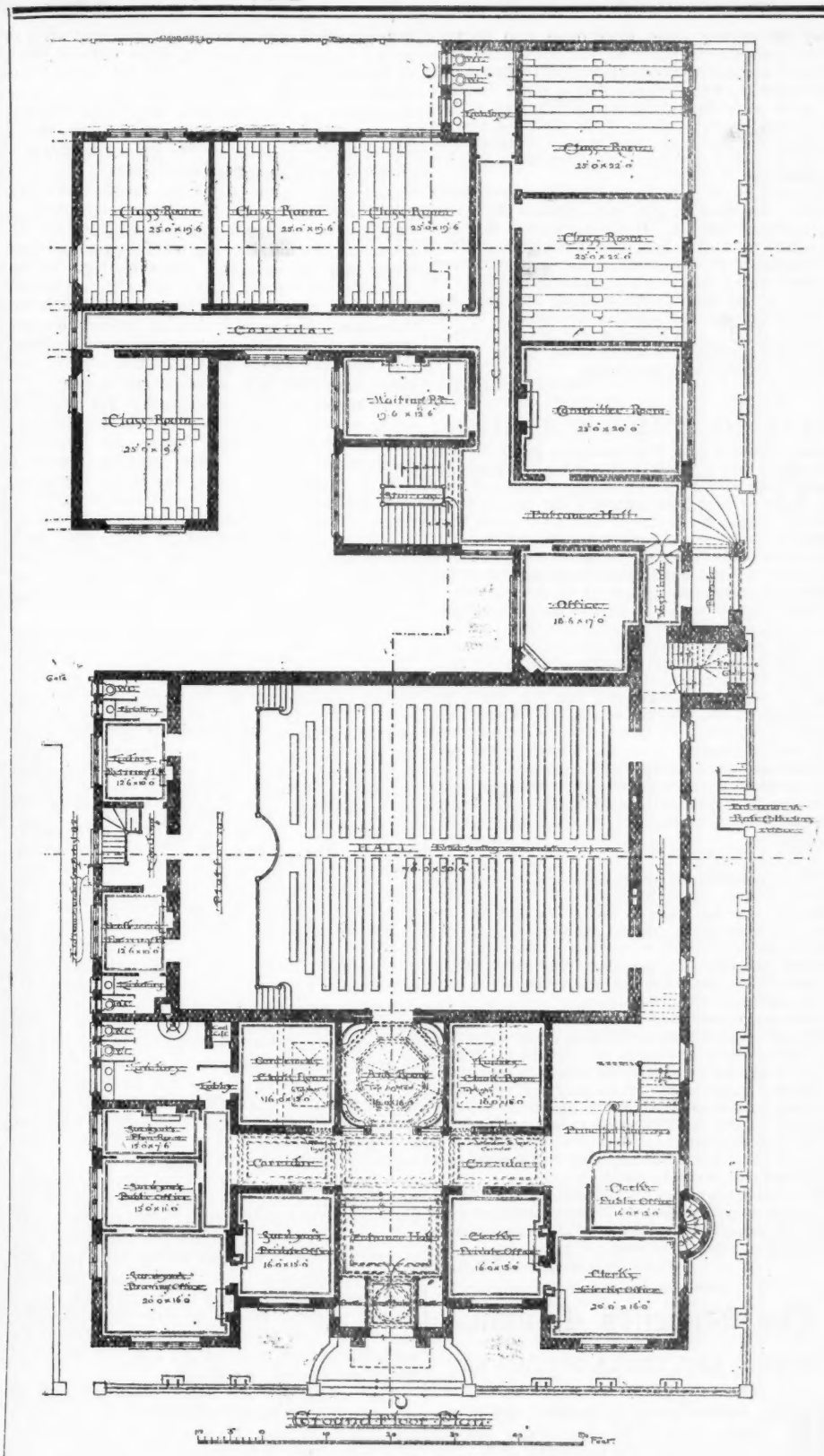
The elevations are the natural expression of the plans, and no sacrifice of internal convenience or economy has been made for the sake of exterior effect.

MURRAY & FOSTER.

SKETCHES FROM FLORENCE, SIENA, AND VENICE.

THE two flag or torch holders (surmounted by lamps, not shown), are on the corners of the "Via Tornabuoni" front of the Strozzi Palace, and are considrred fine examples of the ironwork of the period (they are supposed to be by Caparra, 16th. cent.). That in the centre is of a lighter design, as befitted its position, which is clasping a single column standing apparently as a monument at a "cross roads" in Siena. The mosaics are in the North porch of St. Mark's, and afford a good example of the difference in treatment of design when large or small tesseræ are used.

ARTHUR C. BLOMFIELD.



Plan of Design for Technical Institute, Leyton.

THE LONDON COUNTY COUNCIL.

THE first meeting of the newly-elected County Council was held in the County Hall, Spring Gardens, on Tuesday.

Élection of Officers.—The time of the meeting was mainly given up to the election of officers, and after considerable debate, Mr. Arthur Arnold was elected chairman, Mr. Williams Benn, M.P., vice-chairman, and Mr. W. H. Dickinson, deputy-chairman.

New Fire Brigade Station at Fulham.—The report of the Fire Brigade Committee contained the following paragraph :—

"Last June the Council resolved to erect, without the intervention of a contractor, a new station in place of the existing fire-engine station at Fulham, the cost of the work being then estimated by the architect at 10,500*l.*, and on June 26 the Works Committee reported that it was satisfied with the estimate and specification, and was taking the necessary steps to carry out the work. Owing to circumstances which we have fully explained in previous reports it has not been practicable until now to commence the work and the price of materials having in the meantime increased, the Works Committee suggests that the estimate needs revision. We have consulted the architect, and he reports that if he were now making an estimate upon the drawings and specification sent to the Works Committee last year his figures would be increased by 500*l.* He also asks that, as the building is to be erected a few feet back from the line originally proposed, a sum of 400*l.* may be added to cover the cost of fencing in a strip of additional ground which has been acquired, and which he suggests might be excavated with a view to the better lighting of the basement. The revised estimate of the cost of the station is therefore 11,400*l.*, and we recommend—

"That the revised estimate be referred to the Works Committee."

The Council adjourned soon after 7 o'clock.

ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—On the 6th inst. a meeting of this Association was held, Mr. E. P. Loftus Brock, F.S.A., in the chair. The Rev. Case Browne, M.A., exhibited a rubbing of a brass monument to the memory of Thos. Hendley and his wives in Offham Church, Kent. It is fixed to a wall, and is remarkable for having no dates filled in of the interments of any of the persons whom it commemorates. It was, doubtless, erected in their lifetime. Various photographs of the church were also exhibited. The first paper was on "The Church and Manor of Offham," by the Rev. Case Browne. The name is recorded in many ancient documents with several variations. Its early connexion with a Saxon king is probable, not only from the name but from the fact that Offham was a royal manor at the Conquest. The church, which has been once much restored, preserves some traces of ancient masonry, and its plan indicates various changes from the simple nave and aisles of its form in Norman times. There is curious reference in a will to a brass erected by a widow to the memory of her son, John Revell, 1524, in which she enjoins that the figure is to be as nearly as possible like her son, showing, as has not untrequently been supposed was the case, that effort was actually made in these memorials to create a likeness to the person represented. A second paper by Dr. Russell Forbes, of Rome, on "The Ancient Gates of the Church of Sta. Sabina, Rome," was read by Mr. W. de Gray Birch, F.S.A., in the author's absence. The gates are of remote antiquity, and their appearance justifies the belief that they date from the middle of the fifth century. The material is cypress and cedar. The setting of the panels in a framework of vine leaves is of much later date, and in the resetting the panels have probably become disarranged. They are carved with subjects taken from the Old and New Testaments, the Crucifixion, the two Marys at the Sepulchre, the Adoration of the Magi, Christ and the Woman of Canaan, Christ receiving Sta. Sabina, the water being turned into wine, the Ascension, and Elijah in his chariot, being amongst the subjects represented. The panels are of value, apart from their actual style and workmanship, from their being such early examples of the mode of representing Biblical subjects. The paper was illustrated by admirable photographs of these little-known works of art.

SOCIETY OF ANTIQUARIES OF SCOTLAND.—The usual monthly meeting of the Society of Antiquaries of Scotland was held on the 11th inst., the Hon. Hew Dalrymple in the chair. The first paper, on "The Monumental Effigies of Scotland from thirteenth to fifteenth century," by Mr. Robert Brydall, F.S.A.Scot., St. George's Art School, Glasgow, was illustrated by a series of drawings by the author. The custom of carving monumental effigies in full relief, he said, did not appear to have prevailed in Scotland until the thirteenth century, the incised slab, and a peculiar treatment of the figure in flat relief, having been the previous monumental forms. While it was on record that certain tombs or effigies such as those of The Bruce and Robert II., were sculptured on the Continent and in England, the greatest number were executed in Scotland. The destruction and dilapidation of these splendid works of art in Scotland was scarcely conceivable until the list was reckoned up. If they excepted the mutilated coffin-lid of William the Lion at Arbroath, the effigy known as Marjory Bruce, at Paisley, and the unidentified Stewart of Bute, at Rothesay, they had no royal effigies left in Scotland. Of those of church dignitaries, most had disappeared, while of those that remained none had escaped mutilation or decay. Even the knightly effigies, of which more examples had been preserved, were for the most part in much the same sad state. In strong contrast to the English effigies, with their beautifully enamelled heraldry and metal figures, the Scottish effigies, with the exception of two or three in marble, were of ordinary stone, and the only suggestion of the use of other material was in the hollows for the face and hands in the fine incised slab at Creich, also in contrast with England. There was no doubt that many of the Scottish effigied tombs were coloured and gilt ; and worn, defaced, and mutilated as they were, their study was still full of interest to the artist, the antiquary, and the historian. Mr. Ross, architect, and Mr. Balfour Paul, Lyon King of Arms, made some remarks on the interest of these Scottish monuments, and the desirability of a complete description of every example being obtained as speedily as possible. In the second paper, Dr. Joseph Anderson gave an account of the cave recently discovered at Oban, which had been explored, under the auspices of the Society, by a local committee. In the third paper, Mr. D. P. Menzies, F.S.A.Scot., described the bagpipes preserved in the family of pipers associated with the chiefs of Menzies. The last paper was a description, by Mr. H. F. Morland Simpson, of

a Rune staff of Swedish origin, presented to the museum by the Hon. John Abercromby.

Correspondence.

To the Editor of THE BUILDER.

THE TRADE UNIONS AND THE EDUCATION CONFERENCE.

SIR,—I am sure that there is not one of your readers who will not view with considerable regret the occurrence at the last meeting of the Education Conference, which threatens to seriously interfere with its future work and power for good. I therefore crave your permission to define the present position as clearly as I am able, because it seems to me that the difficulty is largely caused by an imperfect comprehension of the points at issue, and may, after a little explanation and reflection, disappear.

It should be quite clear that the workmen's societies were not invited to attend the Conference in their Trade Union or political capacity, any more than the builders' societies or the architects' societies. They were all invited simply as societies of men engaged in particular branches of the building industry of London, whose practical knowledge of the particular difficulties under which their members laboured would be of great service to the Conference. The ideal method would no doubt have been for each of the trades to have appointed representatives by vote, quite irrespective of societies of any kind. This was, however, a plan involving great practical difficulties—and, indeed, almost impossible. It was therefore determined to do the next best thing, and to ask the principal societies that had been established by the men in the various trades to elect delegates. In this case the machinery for election was ready to hand, and although the electorate was hardly as comprehensive as it would have been had the former alternative been chosen, the practical advantages of dealing with established organisations were sufficient to outweigh the disadvantage of a limited electorate. The societies were, in fact, asked because they represented an assemblage of men who were engaged in the practice of a particular branch of the building industry. It was only an accident that they happened to be Trades Unions, and it cannot be made too clear that the political side of their activity had nothing whatever to do with this invitation. It could not possibly have had, because the Conference itself was essentially on non-political lines. Its object was to find out whether a combined effort could not be made to raise the standard of workmanship throughout the building industry. This seemed to be a common ground of agreement where all might meet on perfectly equal, friendly terms. The question affected the architects as much as the master-builders and the workmen, the supporters of examinations as much as their opposers, the Trade Unionists as much as the Non-Unionists. It was therefore gratifying to find the invitations accepted in the same generous spirit in which they were issued. To make this position doubly clear a self-binding resolution of a stringent nature was unanimously adopted by the Conference at its first meeting, which placed entirely out of the question any attempt to introduce politics of any sort.

The Trade Union delegates who withdrew on Friday because of the presence of a delegate from the Free Labour Association, evidently did so with great reluctance; but their instructions were absolute, and they had no alternative. But they will no doubt fully report their action to their various Executives, who will have to decide as to their future attitude, and I cannot yet believe that these Executives, when the whole bearing of the case is placed fairly and squarely before them, will hesitate to authorise their representatives to continue to attend the Conference. It is scarcely credible, in these days of free and open discussion, that any considerable body of men would willingly consent to wreck a Conference whose sole aim is to advance the position of the great art of building. It is not as if the men themselves were lukewarm on the subject. I can testify to many of them being very keen, and desirous to do their work creditably, and to carry out the architect's designs in a loyal and thorough manner. No one knows better than the Trade Societies what an amount of work there is for this Conference to do. Are they, therefore, going to retire simply because of the presence of one delegate from one Society whom they conceive to be distasteful? Surely the members of this Society have lads of their own to educate and send out into the world, and it would not have been a very English action for the Architectural Association to have refused to invite this Society, on account of their political views, which have nothing whatever to do with the subjects under discussion by the Conference.

Whichever way the situation is looked at, there seems to be no sufficient reason for the withdrawal of the Trade Societies. Mr. Verdon's speech was evidently intended to prove that the Free Labour Association did not consist of practical workmen, but if this be the case, are not the architects going to find it out for themselves? Will he not even give the architects credit for sufficient shrewdness and knowledge to be able to tell men who know what they are talking about from those who do not? This Conference will have to deal with many questions of intricate detail, and from the Trade Union's own point of view, I suggest that it would be more judicious to let the architects form their own opinion of the relative capabilities of the delegates, than to prejudice the whole case by this early withdrawal on a matter that has nothing whatever to do with the Conference.

I would therefore venture to appeal to the Trade Union executives to give this question their very earnest consideration. It is not a matter that can be lightly dealt with, because if the advances of the architects are to be slighted in this instance, it may be some time before they are renewed, and the two classes, whose interests are so closely identified, will drift further and further apart, to the detriment of their common good. It is indeed a very grave responsibility, and the decision appears now to lie wholly with the Trade Union executives.

OWEN FLEMING.

CREWE SANATORIUM COMPETITION.

SIR,—Until I saw Mr. Granger's letter in your last issue I was not aware that he had placed my design first, as I had been officially informed that Mr. Bolshaw had been awarded the 1st premium and Mr. Payne the 2nd. It seems very clear that either a mistake has been made owing to Mr. Bolshaw's motto being the same as mine, or there has been a serious injustice in passing over the deliberately-arrived-at judgment of the assessor as set forth so definitely in his report which you publish. If I may be allowed to say so, I consider that Mr. Granger has acted in a public-spirited way in resigning another appointment in consequence, as he says, of the unsatisfactory result of this competition, and also in publishing his report, but for which we should have been ignorant of the real facts of the case.

I enclose extracts from the advertisement and instructions issued by the Corporation, so that you may judge of the matter, and would call particular attention to the advertisement which refers to the design "adjudged best," and adds the name of the assessor.

HAMPDEN W. PRATT.

SIR,—As author of design submitted under motto "Red Maltese Cross in Circle," the design mentioned in your last issue as one of the best sent in, allow me to point out that no mention of future extension was made in the conditions issued to competitors, and only after the point had been raised by an intending competitor did we receive word that future extension was not unlikely.

Even had it been made a condition, I would have shown the extension encroaching upon the adjoining land, for, as you point out, the present site is only large enough for the accommodation now required.

Another point raised by the assessor, viz., that one design suffered through not having provided a separate laundry for staff seems to indicate his want of practical knowledge. For a hospital of this size no special staff laundry is required, and it is only an additional cost in erecting and working.

Mr. Granger's letter clears him of the charge of complicity in this last and worst municipal job: although his judgment and that of Dr. Jones appears to have been seriously at fault.

W. G. WILSON, A.R.I.B.A.

The Student's Column.

BRICKS AND TERRA-COTTA.—XI.

THE COLOURING OF BRICKS.

THE production of an uniform tint in the better class of building bricks has for years exercised the ingenuity of leading makers, and whilst some are able to turn out materials of any desired tint within certain limits, others fail conspicuously in that respect, their circulars to the contrary notwithstanding. The causes of failure are not far to seek; they are primarily the result of non-appreciation of the actual chemical and mineralogical nature of the earths employed, and secondly, utter inability to control the temperature at which the bricks are burned. Of course, more incompetent makers still, neglect the necessary preparation of the raw earths, and quite a large number (even with a pretence of knowledge) understand so little the actual character of the raw material they use in tens of thousands of tons, that it is a wonder they are able to produce anything of marketable value. It is not too much to say that the majority of manufacturers add certain ingredients to produce certain colours from having ascertained, by a sort of side wind, what their successful neighbours are doing. So it is that many extremely elementary scientific problems are introduced to the visitor as "trade secrets."

In the colouration of bricks, as much depends on the method of burning as in the composition of the earths after preparation. Anyone with moderate care could produce red bricks, say, from an earth containing much iron; but it requires a different kind of skill to always burn that earth in such a manner as to ensure a whole kiln-full being of the same tint as another kiln-full burnt a few weeks previously. There is nothing much more annoying to an architect of a large brick building than to notice a difference, however subtle, in the tint of bricks delivered on the job during the progress of the building from first to last. They may be thoroughly sound bricks, and excellent in every other respect, but that the colour is uncertain is sufficient to condemn them in most architects' eyes. Slight differences in tint in large blocks of stone may be tolerated, and even regarded as desirable for certain work; but with bricks and terra-cotta, especially the former, the case is not the same. The result is that the makers in many districts, finding they cannot produce uniform tint with the means at their disposal, are, perforce, compelled to do a second-rate trade.

We regret to say, however, that the faculty of being enabled to produce a certain desired tint and a fine-grained brick has so far impressed itself on the minds of some manufacturers as to lead to neglect in other directions connected more particularly with the weather-resisting properties of the material. No process of colouration is to be commended which, in the end, tends to the decay of the bricks; and it is well to bear in mind that the colour produced should last longer than the time occupied in putting up and finishing the building.

Further—and this is a point that has received practically no consideration hitherto—it is desirable that the class of mortar used should be suited to the composition of the brick, or rather *vice versâ*. It is generally believed that fairly good mortar undergoes very little change after being put into the wall; although we have no intention at the present moment of going into the subject of mortars, it may be pointed out that this is not always the case, and that unsightly streaks produced in bricks are not unfrequently due to the effects of chemical solutions derived from the mortar. We are far from saying that many good bricks are affected in this manner, and we must confess that on a casual inspection we believed the markings to be altogether due to runlets of rain water down the face of the building between the joints, as it were. On a closer examination, and as the result of experiment, we are convinced that whilst the effects produced may in a few instances be due to the mere action of the weather, spread over a number of years, in the majority they arise from the composition of the mortar, which is attacked by rain and provides material for a solution which tends to blanch red bricks. Another point to which we may call attention is the prevalent use of iron railings, balconies, ornaments, and the like outside buildings, which, when not properly fixed to brick walls, and not well looked after when put up, frequently stain bricks a rusty brown colour. It is, perhaps, well nigh impossible to effectively control this matter, which lies for the most part outside the province of the architect; but something, at any rate, could be done to mitigate the evil in the first place by proper construction and painting. We know of many solutions to prevent the oxidation of iron, upon which, however, we would rather not express an opinion.

The other day we were much amused to observe the elaborate attempts of a suburban architect to prevent this staining of a brick front of a not altogether unpretentious building. He fixed a piece of galvanised iron in the form of an arch over the point of junction between the iron balcony and the wall, to shield it from the inclement weather. A little lower down was a hideous carving in Aberdeen granite, which explained matters. It was not so much the brickwork that was to be protected as this precious specimen of workmanship. But he was not so particular in the matter of the quality of the "compo.," however, as he might have been, with the result that a series of beard-like rusty stainings have formed therefrom on the brickwork, which extend to the carving in question. And who shall say that they are not improving its appearance? This is somewhat akin to the modern use of "gorgons' heads" at the end of gutters discharging rain-water from the roof.

Turning now to the general consideration of colouring bricks it may be said that the colour of the earth of which they are made is no guide whatever to the tint assumed after burning. In brickmakers' parlance a red clay is one that produces a red tint, white clay a white tint, and so on; the raw earths may neither be red nor white. Colour depends, in a great measure, on the proportion of hydrated oxide of iron in the clay; if iron is present in clay containing no lime, or similar substance, the colour produced at a

moderate red heat will be red, and at the same temperature the more iron present the deeper will be the colour. In Switzerland they do not hesitate to burn clays containing as much as 27 to 32 per cent. of calcium carbonate, and which are stated to make bricks of superior quality. The following analyses are useful in this connexion :—

Chemical Composition of Brick-earth, Zurich.

	Yellow clay.	Blue clay.
Carbonate of lime	23·68	27·80
,, of magnesia	—	5·70
Other carbon dioxide	2·85	1·55
Silica	42·39	38·25
Alumina	18·16	12·44
Iron oxide	3·66	·73
Lime (as silicate)	—	1·85
Magnesia (as silicate)	—	·15
Potash	2·14	1·54
Soda	1·27	3·05
Moisture (at 100 deg. C.)	1·27	1·37
Water, &c., chemically combined	3·85	4·72
	99·27	99·15

Professor Lunge, of Zurich, states that the bricks made from this clay, if burned at the ordinary heat, say a moderate red heat, are *red*, and do not keep in the air, but crumble away very soon, as the quicklime slackens on combining with the moisture. When burned at a bright red heat, about 200 deg. C. above the former, they are nearly *white*. The lime is then present as a ferri-alumina-calcic silicate, which causes the red colour of the iron oxide to disappear, and, at the same time, entirely prevents any action of the moisture, free lime being no longer present. Many millions of bricks have been made from this clay during the past twenty years, and are noted for their durability. We quote this case from a foreign source to show that what in this country most manufacturers would regard as a bad earth is elsewhere treated in such a manner as to lead to excellent results.

When more than 10 per cent. of iron is present, the clay is apt to burn to a blue, and almost to a black, colour. The same thing happens if a clay contains a lesser proportion of iron, and, being slightly fusible, becomes vitrified on the outside by the application of intense heat. In the ordinary way, with less heat, such clays would burn a deep red colour, which longer firing changes into a greenish blue tint—Staffordshire bricks, for example. From 3 to 4 per cent. of magnesia present in clays generally produces bricks of a brown colour.

The following process has been adopted at Hull, amongst other places, in the manufacture of white-pressed bricks from common red clays. It consists in mixing or grinding into the common clay, lime made from magnesian limestone, in a slacked condition. The mixture is passed through a series of mixing and grinding-mills, and then acted upon by an apparatus which reduces it to a fine grain (like fine mud), in which state it falls through the feeder into the moulds of a powerful steam-pressing machine, is subjected to heavy pressure, and is delivered at the delivery-table a complete and almost dry-pressed brick, which, when burnt in the kiln, produces a white brick of good quality. The ingredients added to the clay at once absorb about 40 per cent. of the moisture found in the natural clay, and the grinding is so close and complete that the mixture is thoroughly and evenly amalgamated. The process is said to be applicable to any common red clay.

In regard to the manufacture of black bricks, these have been partially alluded to in speaking of the production of a deep blue tint, but the following, if a rather reprehensible method, has the merit, we are told, of being highly successful. To obtain perfectly black bricks from natural earths, even by the admixture of metallic earths with them, is by no means an easy process; such bricks are generally expensive, whilst most of them are soft and brittle. Within the past few years, however, considerable advance has been made in the production of this class of goods. In the method referred to, bricks of even texture, smooth surface, of true outline, and sharp arris on one face are selected, according as they are required for "headers" or "stretchers." Place them with the selected face exposed to an open fire, and when nearly red hot dip each brick singly into a cauldron of boiling coal-tar to a depth of about 1 in. from the face to be stained; hold it in the tar for a few seconds, and then place it to cool and dry with the stained face upwards. If this be properly done, the surface will be found to be a deep bright black, the stain will extend to a depth of $\frac{1}{2}$ in. or $\frac{3}{4}$ in. from the face, the surface will be without gloss, the stain will not rub off on to a dry finger with even strong friction, and the weather will have practically no effect upon it. If, however, the brick is not hot, and the tar boiling, the stain will rub off, and in hot weather the tar will sometimes run. The success of the operation can always be tested by the appearance of the brick when cool. Always reject those having a glossy surface, as they are only coated, not stained.

The plastic clays of Suffolk, Devonshire and Dorsetshire burn to a clear white; yellow bricks, the colour being partly produced by the sand used in the moulding process, are made near London; blue bricks, as previously mentioned, are largely manufactured in Staffordshire; red bricks are made almost everywhere in England where clays crop out, though really good red bricks come from but few localities.

The following materials were recommended, many years ago, in our columns*, to be used in producing delicate tints having whitish clay as a basis. Very light blue = phosphates of lime of various kinds, such as bone dust, oyster shells and "mineral" phosphates. Brighter blue = a mixture of any of the foregoing with a quarter of its weight of alum. Greenish = a mixture composed of three-quarters sulphate of lime (white vitriol) with a quarter of borax. Fine red = sulphate of iron, and the same with about 5 per cent. nitrate of soda or potash (nitre, saltpetre). Yellow = sulphur and oxide of tin in equal proportions. In these mixtures the salts were supposed to be quite anhydrous, and to be measured by weight. Some of the ingredients are, obviously, too expensive to be used on the large scale; still the colours mentioned can be produced by them, and we thought it useful to state the fact.

By the employment of metallic oxides and ochreous metallic earths, ornamental bricks can now be made in a wide range of tints; but this branch of brickmaking is, perhaps, best understood by those manufacturers who habitually deal with the more valuable deposits drawn upon for making ornamental tiles and the like.

GENERAL BUILDING NEWS.

CONGREGATIONAL BUILDINGS, FINCHLEY.—On the 12th inst., Mr. George Spicer presided at the inaugural meeting in connexion with a block of buildings adjoining the East Finchley Congregational Church. The block, which has been erected from the designs of Messrs. Spalding and Cross, architects, at a cost of 4,500*l.*, comprises a large hall, capable of seating 850, and arranged so as to form a number of class-rooms, library, church parlour, and rooms for the superintendent of the Sunday-school and the secretary. The new premises are united with the church by two corridors.

BOARD SCHOOL, STAFFORD.—A new board school has just been opened at Stafford. The site of the schools is on the new Corporation-street leading across the Coton Fields. The leading principle in the arrangement of the schools is a central hall, round which are placed eight class-rooms, hat and cloak rooms, and lavatories. The entire accommodation is for 608, 360 boys and girls in the mixed school, and 248 infants. The materials of construction are hard-burnt Staffordshire bricks, faced with the red bricks of the Heather Brick Company, with dressings of Penkridge stone. The work has been designed and carried out under the superintendence of the architect to the Board, Mr. Nicholas Joyce, of Stafford, the clerk of works being Mr. Henry Pebworth, who has just been appointed to similar duties at the new County Asylum at Cheddleton. The general contractor, whose tender was 6,533*l.* 10*s.*, is Mr. James Jervis, of Stafford. The heating and ventilating has been carried out by Messrs. William Truswell & Son, Newcastle-under-Lyme and Sheffield. The heating is on the low-pressure principle, by means of ten ornamental radiators placed in the central hall and one in each class-room. The ventilation is upon the automatic principle.

THE PROPOSED RESTORATION OF ST. JOHN'S CHURCH, PERTH.—A meeting of the Executive Committee in charge of the restoration of St. John's Church, Perth, was held on the 8th inst. After discussion, it was agreed that Mr. Heiton architect, should complete plans showing alternatively the throwing of the East and Middle Churches into one, and the improvement of the Middle Church, on the footing of the churches remaining separate.

NEW ACADEMY FOR DUMFRIES.—A meeting of the Dumfries Burgh School Board was held on the 8th inst. with reference to the proposal to erect a new academy. Mr. Hiddleston moved that the Board proceed to carry out the plan sent in by Mr. Frank Carruthers, Lockerbie, to which the first premium had been awarded in the competition, and which, it was estimated, would cost something like 13,000*l.* Mr. W. A. Dinwiddie seconded the motion, which was then adopted by 5 votes to 4, and instructions were given to proceed with specifications and schedules for the new building, Mr. Scott, Glasgow, being appointed measurer.

NEW SALT WATER BATHS, ABERDEEN.—The Town Council has resolved to erect on the high ground at the seabeach a new bathing station, at a cost, including fittings and boiler and pump, of 3,000*l.*, from the design of Mr. John Rust, junior, City Architect. There will be a main building 40 ft. by 36 ft., with a wing at each end 35 ft. by 26 ft.—the whole one floor in height except the central block, which has a sunk or basement floor. On the ground floor of the main block will be a refreshment room, an office, waiting-rooms, lavatories, and water-closets. The end wings will contain eight first-class and eight second-class plunge baths for ladies and gentlemen, the first-class fitted up with shower and spray, the second-class with spray only, with attendant's room at entrance. On basement floor will be kitchen, scullery, boiler-house, pump-room, wash-house, drying-closet, laundry, and stores. The buildings will be of pressed bricks, with coloured fire-brick bands and string-courses, and the verandahs of wood and iron. The west and east elevations will be ornamental, and the roofs will be slated. The internal fittings will be of varnished pitch-pine, the baths of enamelled fireclay, the walls laid with tiles to the height of 4 ft., and the floors to be formed of coloured concrete. The present bathing station will probably be retained for third-class baths. In the yards behind are stored the bathing-machines when not in use, and there is already a detached stable as well as a life-boat house.

FURTHER EXTENSION OF THE PATENT OFFICE.—The contract for Block No. 3 of the Patent Office has been let to Mr. B. E. Nightingale. The fire-proof floors will be on the same system as those used in Block No. 2, and will be constructed by Mark Fawcett & Co., of Westminster, on their patent system.

SANITARY AND ENGINEERING NEWS.

SEA WALL, PENZANCE.—The Penzance Town Council's Highways Committee reported on the 27th ult. that the surveyor (Mr. G. H. Small) had produced the plan for the new wall which was submitted in 1889, and an alternative plan. The committee carefully considered the whole matter and submitted the two plans to the Council, feeling satisfied that either plan would give a substantial sea-wall. The estimate of the wall proposed in 1889 was 7,500*l.*, and that of the alternative plan was practically 10,000*l.*

ELECTRIC LIGHT AND DRAINAGE SCHEME, MONMOUTH.—The Mayor (Councillor W. Honeyfield) presided at the monthly meeting of the Monmouth Town Council, held in the Shire Hall on the 4th inst. The principal item on the agenda was the consideration of the plans, &c., for a combined scheme for drainage and electric light, prepared by Messrs. Bramwell and Harris, C.E., and Mr. Lailey, C.E., London. The Council had already gone into the plans in conjunction with the engineers in committee on February 22, and an addition of about 4,000*l.* to the cost of the scheme was proposed, owing to additional details in the drainage of the streets of the town (Mr. Lailey's portion of the work), which would raise the original estimated cost of 18,000*l.* to 22,000*l.* Messrs. Bramwell and Harris had now offered to take over that part of the scheme entrusted to Mr. Lailey and carry out the whole work at the original cost of 18,000*l.* It was decided to accept the plans of Messrs. Bramwell and Harris, subject to the approval of the Local Government Board.

SEWERAGE WORKS, GLOSSOP.—Colonel Ducat, one of the Inspectors of the Local Government Board, held an inquiry in the Town Hall, Glossop, on the 6th inst., on an application from the Corporation of Glossop for borrowing 40,000*l.* for purposes of sewerage and sewage disposal. The Town Clerk explained that the Council had offered premiums of 100 guineas and 50 guineas respectively, and out of fifteen competitors the first premium of one hundred guineas was awarded to Messrs. Lomax & Lomax, C.E., of Manchester and Bolton, who had been retained to carry out the works. Mr. C. J. Lomax explained the proposed arrangement of sewerage, and described the outfall sewage purification works as prepared for the treatment of the sewage by the international process. On entering the works the sewage will receive a due proportion of the precipitant ferozone by means of a "Kierby" mixer, and will then pass to the precipitation tanks, which are of the new form of the continuous upward flow circular tank, four in number, provided with the Candy Patent Sludge Removal Apparatus. By means of this apparatus the sludge will be removed without interference with the continuous use of the tank. The effluent being delivered within a few inches of the inlet of the sewage, will pass direct to the filter-beds, arranged on the method of the International Water and Sewage Purification Company, Limited, viz., "Polarite." After hearing the evidence, there being no opposition, the Inspector visited the site, and promised duly to report.

FOREIGN AND COLONIAL.

FRANCE.—The second exhibition of the Society of Miniature Painters and Illuminators of France will take place at the Georges Petit Gallery on May 15.—M. Chaplain, the engraver, has completed the medalin commemoration of the election of M. Casimir

* The *Builder*, 1855, p. 419.

Perier. On one face is a portrait of the ex-President, on the other a woman in antique drapery and covered with a veil, as if mourning, symbolises France, placing a vote in an urn at the foot of the column. M. Chaplain has now received a commission to execute a medal in commemoration of the accesion of M. Faure. It will be curious to see if the presidency will again have changed before the commemorative medal of the existing President has been completed. ——An architect, M. Galison, has proposed to the general committee of the 1900 Exhibition the construction of a celestial sphere fifty mètres in diameter. ——Important works are shortly to be commenced for the enlargement of the Calais canal.——The Chamber of Deputies has approved of the construction, by the railway company "du Midi," of a line branching from the Bordeaux line to the frontier of Spain, and terminating by a "gare maritime" at Bayonne, on the left bank of the Adour.——There is talk of constructing around the town of Epinal (Vosges) a fortification wall on the modern system. ——Ten sculptors took part in the competition opened by the municipality of Fontainebleau for a monument in honour of President Carnot, to be erected on an open space in the town. The models for these are now on view in Paris, in a room in the mairie of the IVth Arrondissement.——The ancient palace of the Popes at Avignon has been for a long time in use as a barrack, and in the process of this use the fine paintings and sculpture which it contains have suffered much injury. A committee of artists and archæologists has been formed in order to raise a sum to build a barrack elsewhere and offer it to the Government on condition of the latter vacating the papal palace, which would then be formed into a museum. It is to be feared, however, that it will be "restored" first, and perhaps the mischief of the restorer will be more irreparable than that of the soldier.——The death is announced of M. Victor Vaissière, a former engineer of the Ponts et Chaussées department, and who was one of the most zealous collaborators of Baron Haussmann in the work of the transformation of Paris.——The death is announced also of two artists of great talent, of whom we shall speak more at length on another occasion—M. Charles Delort and M. Armand Dumaresq—the first a painter of *genre*, the second of military subjects.

MISCELLANEOUS.

PARTNERSHIP.—Messrs. Macer & Fitzwilliam, surveyors and land agents (London), have taken into partnership Mr. West, formerly Assistant Surveyor to the Hackney District Board of Works. The new style of the firm will be Macer, West, & Fitzwilliam.

A GRANITE PULPIT.—At the Aberdeen Granite Works there has been constructed, after the design of Mr. A. Marshall Mackenzie, A.R.S.A., a pulpit to be placed in the new church at Crathie, near Balmoral. The foundation-stone of the new church, for which Mr. Mackenzie is architect, was laid by the Queen last September. The pulpit, which will be placed opposite the Royal pew, has five sides, and is made of fourteen different kinds of granite, giving plenty variety of colour. There is a chamfered base, 2 ft. 6 in. high, with a die above, both of fine-axed Inver granite. At each of the six corners are clustered columns—three in a group, or eighteen in all—of polished granite, with carved capitals. The granites used are Birsemore, Hill of Fare, Rubislaw, Peterhead, Mull, Cairngall, Corennie, Ben Cruachan, Abriachan, Dalmore, Dyce, Kinsteary, and Glen Tana (the latter being really a porphyry). Between these shafts are panels, with raised centres, facetted and polished, in various granites. There is a moulded cornice in fine-axed Kenmay granite, and under it will be placed a series of pebbles, collected by Princess Louise on the Island of Iona, and which have been beautifully polished. The pulpit, which has a reading-desk, is 5½ in. high, and will be lined with wood.

VENETIAN BLINDS.—Messrs. Tidmarsh & Sons sends us a description of some of their special provisions for insuring the good working of venetian blinds, among other things a guard over the pulley frame to prevent the cords jumping off the pullies, a not very uncommon accident.

A PROTECTION BELT FOR WINDOW-CLEANERS.—Mr. F. O. Ferguson, of Ilfracombe, has patented a belt which is to go round the waist of a person seated on the window-sill to clean the outside of a window, with side straps to be attached to a strong iron hook or staple in the jamb of the window opening. Until we get all sash windows made reversible a contrivance like this may be useful in preventing accidents.

THE INSTITUTION OF CIVIL ENGINEERS.—At the ordinary meeting of this Institution, on Tuesday, Sir Douglas Fox, Vice-President, in the Chair, the first paper read was on "The Kidderpur Docks, Calcutta," by Mr. W. Duff Bruce, M.Inst. C.E. Within the limits of the Port of Calcutta the river Hooghly varied in width from 1,300 to 2,000 feet. From March to July, when strong winds prevailed, the current at spring tides attained a velocity of from five to six miles an hour, and during the rainy season the water carried a large quantity of mud in suspension. The city was about ninety miles from the sea, and the tidal range between low water of spring tides in the dry season and the average high water in the rainy season was about 18 ft., and during floods as much as 22½ ft. The Kidderpur docks consisted of a 60-ft. lock and an 80-ft. entrance from the river to a basin 600 ft. by 680 ft., with a double entrance of 60 ft. and 80 ft. leading from the basin into a dock 2,600 ft. long and 600 ft. wide for the greater part of its length, the area of the dock being 34½ acres. Two graving-docks, one 520 ft. and the other 350 ft. long, had also been made on the east side of the basin. An important feature of the design was the construction of a canal and boat dock from Tolly's Nullah to the Southern end of the docks for the supply of clear water. Water was admitted from the nullah to the canal, which was 3,300 yards in length at high tide, and was allowed to flow into the canal until its level attained that of high water. The slucies were then closed, and the flow of the water through the canal being very slow, the mud which it contained on entering the sluices was deposited before reaching the pumping-station. There the water was raised by centrifugal pumps to a maximum height of eleven feet, and discharged into a canal connected to the south end of the lock. The object of this arrangement was to prevent the inflow, through the entrances, of water highly charged with mud, to ensure the frequent change of water in the docks and to allow of the foundations of the walls being kept as high as possible. The pumps provided were cabable of raising 256,000 cubic feet of water per hour through a height of ten feet, and were worked as required to maintain a higher level of water in the dock than in the river. The docks were equipped with fifty-six movable hydraulic cranes, fifty being constructed to lift 35 cwt., and six to lift loads up to five tons. All these cranes had a radius of 36 ft. and overhung the quay 29 ft. Pressure for working the cranes, lock-gates, capstans, and swing-bridges was provided by hydraulic engines situated near the south end of the docks. The engines (two pairs) were each of 230 i.-h.-p. The pressure in the mains was 700 lbs. per square in. In addition to the cranes, sheer-legs, worked by steam-power and capable of lifting 100 tons, had been erected on the east wall of the dock. Cargo-sheds, 300 ft. long and 120 ft. wide, had been erected on both sides of the dock, the total shed-area provided being 432,000 square ft. About twenty-eight miles of railway lines had been laid to the 5 ft. 6-in. gauge, for working the traffic of the docks. The quays and sheds were lighted by arc and glow-lamps. The dock and basin walls, the design of which led to much discussion, were 35 ft. wide at the base. They were built with voids filled up with broken bricks and dry earth, and had a subway near the top for the accommodation of hydraulic and other mains. The walls were of sufficient width at the top to entirely carry the cranes. Owing to the treacherous nature of the ground, it was found impossible to excavate trenches for the full width of the walls; the ground was therefore only taken out for half the width at one time, and when the brickwork was built in the excavated portion up to the level of the dock bottom, the second half of the trench was opened and the wall was then completed to its full width. In the second paper, "Note on the movement of the walls of the Kidderpur Docks," by Mr. J. H. Apjohn, M.A., M.Inst.C.E., an account was given of movements which had taken place early in October, 1890. in the eastern and south-western walls of Dock No. 1.

ARCHITECTURAL AND BUILDING TRADES CLASSES, REGENT-STREET POLYTECHNIC. — The distribution of the prizes won by the students of the architectural and building trades' classes of the Polytechnic took place on Tuesday in the hall of the Institute, Regent-steeet. Three hundred and fifty prizes and certificates have been gained by the students at the Science and Art, City Guilds, and the institute examinations. Mr. F. V. Baars obtained the national competition prize for works, and Mr. J. M. Fisher the City and Guilds' silver medal, the Plasterers' Company's prize of 8*l.* and honours, and first certificate City and Guilds of London for plastering. Mr. G. A. Mitchell also distinguished himself in building construction and plastering, obtaining the City and Guilds special bronze medal for the latter, the Plasterers' Company's prize, and a special silver medal for building construction; while Mr. G. H. Stanley has won a free studentship, value 115*l.* yearly, tenable for three years at the Royal College of Science, South Kensington. After a brief statement from Mr. Robert Mitchell, the director of education, Mr. W. C. Steadman, distributed the prizes, at the conclusion of which Mr. Mitchell moved a vote of thanks to Mr. Steadman, who briefly replied.

WILL OF MR. E. G. PALEY, F.R.I.B.A.—Probate was granted on the 11th inst. of the will of the late Mr. Edward Graham Paley, F.R.I.B.A., Lancaster (of the firm of Paley, Austin, & Paley), who died on January 23, 1895. The net value of the estate is set down at 71,939*l.* 1s. 4d. The testator bequeaths the whole of his household effects, plate, and other articles of value, horses, carriages, stables, &c., for the use of his wife, together with the residence at the Greaves, Lancaster, these, upon her decease, to devolve upon his daughters, Frances Emily and Mary Elizabeth. To his only son, Mr. H. A. Paley, a partner in the firm, he bequeaths the whole of his office property and effects, books, and instruments. The residue of the estate is placed in trust, from which the widow of deceased is to derive 800*l.* per year, and his four children are to have equal benefits from the remainder. He bequeaths 100*l.* each to his grand-children; and 100*l.* to a god-daughter; and 100*l.* is left at the discretionary disposal of the Lancaster Charity Trustees. Excepting the latter the bequests are of a private nature. Two annuities of the aggregate value of 2,500*l.*, each in the Phœnix foundry, Lancaster, are bequeated to his wife, to revert upon her death to his daughter, the wife of Mr. Francis Sharpe, principal proprietor of that foundry.

LEGAL.

CASE UNDER THE NEW BUILDING ACT.

AT Bow-street Police-court on the 11th inst., Mr. Frederick Wallen, District Surveyor for the parish of St. Pancras West, appeared before Sir John Bridge to two summonses calling upon him to show cause why a decision he had arrived at with regard to the proposals of Messrs. Shoolbred to erect new buildings on a site at the corner of Tottenham Court-road and Grafton-street, adjoining their other premises, should not be reversed. Mr. J. P. Grain and Lord R. Cecil appeared for Messrs. Shoolbred. Mr. Wallen had reported that the plans for the new buildings, submitted by Messrs. Shoolbred, were in some respects in contravention of the new Act, and at the last hearing Mr. Grain argued that they complied with the Act in every essential particular.

Mr. Grain now resumed his argument, and mentioned that when the plans were first sent in Messrs. Shoolbred contemplated having something like a hundred sleeping apartments for their employees; but, on the suggestion of Mr. Wallen, that part of the plan was altered. No doubt Mr. Wallen was doing what he conceived to be his duty; but he (Mr. Grain) suggested that in this instance he was labouring under a mistake in alleging, as he had done, that the proposed buildings were of the warehouse class. The plans had been drawn by Mr. H. E. Hovenden, architect. The proposed buildings were of a domestic class, and would, therefore, be treated differently to warehouse buildings.

The defendant said he was willing to waive and withdraw his notice as to the buildings being of the warehouse class. He would admit that they were, under the Act, domestic buildings; but he contended that under Section 41 of the Act, sufficient air space was not provided.

Sir J. Bridge asked the defendant if he understood the Section.

There was no reply until Lord R. Cecil said no one understood it when it was passed.

Sir J. Bridge read a Section dealing with diagonal lines, horizontal lines, and a reference to 63½ deg., and said it was perfectly unintelligible.

Defendant: That refers to the plane of the line, Sir John.

Sir J. Bridge: I am glad there is something plain about it.

Defendant remarked that, if Mr. Grain's contention were correct, all the back yards in London might be covered with houses.

Lord R. Cecil said he would not trouble the Court about diagonal or horizontal lines. The main question was whether Messrs. Shoolbred were bound to have an air space 10 ft. broad running through the whole length of these buildings. He contended the Sub-Clause of Section 41 of the Act, upon which Mr. Wallen relied, did not apply, and that Messrs. Shoolbred would be perfectly justified in erecting buildings upon the plans put in.

Mr. F. T. Schoolbred, senior partner in the firm, produced plans of the proposed buildings prepared by Mr. Hovenden.

Defendant submitted that the majority of the rooms were habitable rooms within the meaning of the Act.

Sir J. Bridge said he was glad he was not bound to determine this case on the construction of any of the Sections of the Act that had been quoted; because almost all the Sections of the Act seemed to him to be so drawn as to be perfectly unintelligible. Where intelligible, they were intelligible in two different ways, and capable of two different constructions. There was one point which was a matter of fact. He found, as a matter of fact, that the buildings were to be used principally as offices or counting-houses, and made an order setting aside the objections of Mr. Wallen as to Section 41, the other objection being withdrawn.

MEETINGS.

FRIDAY, MARCH 15.

Architectural Association.—Mr. J. W. Singer on "Iron and Brass." 7.30 p.m.

Royal Institution.—Professor Roberts-Austen on "The Rarer Metals and their Alloys." 7 p.m.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers).—Professor A. Bostock Hill on "Trade Nuisances." 8 p.m.

SATURDAY, MARCH 16.

Architectural Association.—Visit to the Chelsea Town Hall, Polytechnic, and Free Library.

St. Paul's Ecclesiological Society.—Visit to Sir John Soane's Museum, No. 13, Lincoln's Inn Fields, under the guidance of Mr. George H. Birch, F.S.A., at 3.30 p.m.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers).—Inspection at the Aylesbury Dairy Company's Premises.

Edinburgh Architectural Association. — Visit to Liberton House.

Queen's College, Cork. — Mr. Arthur Hill on the "History of Architecture." XV. 3 p.m.

Junior Engineering Society.—Visit to the Midland Railway's Goods Station and Depot and Repairing Shops, St. Pancras. 3 p.m.

SUNDAY, MARCH 17.

South Place Institute. — Miss Frances Hicks on "Factory and Workshop Inspection." 4 p.m.

MONDAY, MARCH 18.

Surveyor's Institution.—Mr. E. M. Leman on "Agricultural Credit Banks." 8 p.m.

Victoria Institute.—4.30 p.m.

Architectural Section, Glasgow Philosophical Society.—(1) Mr. Lewis R. Crosskey on "Industrial Art, with special reference to the training of Artisans." (2) Annual Business Meeting. 8 p.m.

TUESDAY, MARCH 19.

Institution of Civil Engineers.—(*a*) Papers to be further discussed:—(1), by Mr. William Duff Bruce on "The Kidderpur Docks, Calcutta." (2), by Mr. James Henry Apjohn, entitled "Note on the Movement of the Walls of the Kidderpur Docks." (*b*) Paper to be read, time permitting: "Steam-Engine Economy; Condensing Engines," by Mr. Henry Davey. 8 p.m.

Society of Arts (Applied Art Section).—Mr. Alexander Millar on "Practical Carpet Designing." 8 p.m.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers). — Professor A. Wynter Blythe on "Diseases of Animals in Relation to Meat Supply; Characteristics of Vegetables, Fish, &c., unfit for Food." 8 p.m.

Glasgow Architectural Association.—Smoking Concert.

WEDNESDAY, MARCH 20.

Carpenters' Company (Free Lectures on Matters Connected with Building).—Mr. J. D. Crace on "Coloured Decoration of Architecture." 8 p.m.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers).—Inspection and demonstration of the East London Waterworks, Lea Bridge.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

Carlisle Architectural, Engineering, and Surveying Association.—Mr. H. Lees on "Architectural Ornament."

Northern Architectural Association.—Annual meeting. 7.30 p.m.

Liverpool Engineering Society.—Messrs. F. G. Baily, M.A., and Dr. C. A. Kohn on "A Scheme for the Distribution of Energy in Towns." 8 p.m.

British Archæological Association.—(1) Dr. Phené, F.S.A., on "Researches and Excavations on the Plain of Argos." (2) Dr. Fryer on "The Bells of St. Thomas' Church, Bristol." 8 p.m.

THURSDAY, MARCH 21.

Society of Antiquaries.—8.30 p.m.

FRIDAY, MARCH 22.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. Louis Parkes on "Water-Supply, Drinking Water, Pollution of Water." 8 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. G. B. Williams on "Pipe-Siphons under the Ouse, at York." 8 p.m.

SATURDAY, MARCH 23.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers).—Inspection and Demonstration of Beddington Sewage Farm, Croydon.

Queen's College, Cork.—Mr. Arthur Hill on "The History of Architecture." XVI. 3 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

4,441.—GLASS ROOFS: *S. Deards.*—This patent relates to the construction of glass roofs, skylights, &c., where dry glazing is employed. It consists of a T-shaped sash bar of iron or steel, having a metal cap which fits over it and holds the plate of glass between. It is locked by means of studs fitting into passage ways.

5,574.—CLEANSING SEWERS: *C. H. Cooper.*—The object of this invention is effected by passing a drag or scoop through the sewers by means of ropes attached to either end of the drag.

6,331.—BRICKS: *W. G. Prebble.*—For protecting unburnt bricks against the weather. A corrugated iron cover, bowed or arched to a suitable degree, is employed for placing over "hacks" that are drying.

6,538.—FIREPLACES: *J. W. Taylor.*—This is a fireplace with angular sides and sloping back, but without the ordinary front firebars. The materials for combustion are placed on a grid fixed below the level of the hearth, having a receptacle for ashes underneath. Provision is made for protecting the surrounding objects from the action of the fire.

25,165.—MOULDING TILES: *A. Weil and Another.*—In apparatus for moulding tiles a removable sheet-metal under-mould is employed, which serves also as a support for the tile during finishing operations.

159.—WATER WASTE PREVENTERS: *J. Jones and Others.*—This is an improvement in flushing apparatus. A syphon and flushing pipe contained in the cistern is in communication with the syphon of a second pipe for establishing a direct connexion between the flushing pipe and the cistern. A spring-actuated self-closing bath valve is employed for breaking the communication after flushing.

NEW APPLICATIONS FOR LETTERS PATENT.

FEBRUARY 25.—3,966, R. Richards, Pipes made of Lead, &c.—3,967, D. McLean, Grindless Plane Iron.—3,971, C. Young, Tiles for Copings, Conduits, &c.—3,990, A. Roberts, Ceramic Tiles.—4,009, J. Wilson, Smoke Cures and Ventilators.

FEBRUARY 26.—4,067, W. Fox, Disinfectant Ventilator, &c.—4,080, J. Adey, Hinges.—4,101, A. Jenss, Glazing Windows, &c.—4,109, C. Devenish, Windows, Doors, &c.—4,175, P. King, Doors.

FEBRUARY 27.—4,184, F. Barker, Air-Extracting Ventilator.

FEBRUARY 28.—4,272, W. Youlten, Casements.—4,281, W. Fox, Suspending Window-sashes without the use of cords and weights.—4,283, W. Steele, Securing Doors.—4,306, W. Ederington, Preventing Kitchen Boilers Bursting.—4,309, J. & R. Kershaw, Horizontal Saw-Frames.—4,345, P. Dunstall, Cutters for Wood-Working Machinery.—4,369, C. Rogers, Water-Waste Preventers.

MARCH 1.—4,373, J. Adey, Hinges.—4,396, A. Melville, Door-Knob Furniture.—4,438, J. Köhler, Tiles.

MARCH 2.—4,468, W. Youlten, Fanlights.—4,503, J. Barton, Windows.

PROVISIONAL SPECIFICATIONS ACCEPTED.

233, G. & G. Burgum, Window and Casement Fastener.—1,368, A. Widmann, House-bell.—2,596, P. Mactadyen, Pipes, Junctions, Bends, and other articles from Portland or other Cement.—1,673, T. Dix, Wastes for Lavatories, &c.—2,354, T. Jeffrey, Door or Portière Rods.—2,603, W. Nicol, Fastenings connected to the Sliding Sash Frames and Windows.—2,949, J. Irving, "Lobster Back" Chimney Cowls.—3,015, W. Conrad, Preventing Water-pipes Bursting in frosty weather. —3,076, R. Grocott, Securing Door-knobs to their Spindles.—307, H. Worsey, Door Latches and Latches for Door-locks.—3,177, W. Christian, Window-sash and like Fastenings.—3,313, T. Wingfield, Device to be used with Circular Saws.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.

4,571, A. Wynn, Windows.—6,890, G. Cory & J. Casbay, Paving for Roads and Streets.—8,257, W. Ross, Junior, Syphons for Water Closet and other Cisterns.—8,453, W. Connell, Regulating Fanlights and Skylights.—9,045, H. Dakin, Water Closets, Sinks, and Urinals, and Pipe-Connexions therefor.—24,435, H. Kühn, Door-Closer with Automatic lubricator.—1,247, A. Bartlett, Attachment for ladders.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

FEBRUARY 28.—By *Stimson & Sons:* 26, Thornhill-cres., Barnsbury, u.t. 55 yrs., g.r. 8*l.*, r. 48*l.*, 435*l.*; 3, Brunswick-st. u.t. 25 yrs., g.r. 4*l.*, r. 32*l.*, 215*l.*; 27, Umfreville-rd., Finsbury Pk., u.t. 93 yrs., g.r. 6*l.* 10s., 340*l.*; 110, 112, and 114, Antill-rd., Tottenham, u.t. 74 yrs., g.r. 13*l.* 10s., 450*l.*; 18, Horace-st., Marylebone, f., 180*l.*; 29, Ambrose-st., Bermondsey, u.t. 42 yrs., g.r. 3*l.*, 200*l.*; 8, Dumbleton-rd., Camberwell, u.t. 78 yrs., g.r. 5*l.* 10s., r. 28*l.*, 240*l.*; 156, Loughborough-rd., Brixton, u.t. 28 yrs., g.r. 7*l.* 7s., 255*l.*; 12, Malfort-rd., Camberwell, u.t. 81 yrs., g.r. 8*l.* 5s., 250*l.*; 3 and 4, Heaton Villas, Peckham, u.t. 69 yrs., g.r. 10*l.*, r. 52*l.*, 420*l.*; 2, Stafford Mews, Kilburn, u.t. 81 yrs., g.r. 5*l.*, r. 26*l.*, 150*l.*; 24, Peckham Rye, Peckham, u.t. 11 yrs., g.r. 1*l.*, r. 45*l.*, 325*l.*; 90, Peckham Rye, u.t. 8½ yrs., g.r. 9*l.* 15s., 80*l.*; 92, Peckham Rye, u.t. 8½ yrs., g.r. 11*l.* 5s., r. 42*l.*, 90*l.*; 5, 7, and 9, Nunhead-lane, u.t. 40 yrs., g.r. 15*l.*, 490*l.*—By *Newbon & Co.:* 46, Burton-cres., Euston-rd., u.t. 11 yrs., g.r. 31*l.* 10s., 80*l.*; 43, Canonbury Pk. North, Canonbury, u.t. 42 yrs., g.r. 4*l.* 10s., 420*l.*; "Elm Villa," Elm-rd., Sidcup, l., r. 33*l.*, 390*l.*; "Ayre Villa," Elm-rd., f., 380*l.*; 25, Baronsmere-rd., Finchley, u.t. 87 yrs., g.r. 6*l.*, r. 30*l.*, 255*l.*; 5 and 7, Catherine-pl., Stamford Hill, u.t. 75 yrs., g.r. 6*l.* 10s., 155*l.*; 80 and 82, Cottenham-rd., Holloway, f., 600*l.*; 82 and 84, George's-rd., f. 280*l.*—By *C. C. & T. Moore:* 33, 35, 41, and 43, Rutland-st., Mile End, u.t. 12 yrs., g.r. 9*l.* 16s., r. 113*l.* 8s., 400*l.*—By *May & Rowden:* 45, Northolme-rd., Highbury, u.t. 93 yrs., g.r. 8*l.* 10s., 450*l.*—By *H. L. Howell:* 88, Richmond-st., Marylebone, u.t. 27 yrs., g.r. 8*l.* 8s., r. 30*l.*, 150*l.*; 3, Boundary-mews, St. John's Wood, u.t. 42 yrs., g.r. 4*l.*, 190*l.*

MARCH 1.—By *L. Farmer:* 101, Abbey-rd., St. John's Wood, u.t. 62 yrs., g.r. 11*l.*, 520*l.*; 112, High-st., Kingsland, u.t. 53 yrs., g.r. 2*l.* 5s., r. 94*l.* 10s., 980*l.*—By *Lilley & Weston:* 10, Sutherland-pl., Bayswater, u.t. 51 yrs., g.r. 11*l.*, r. 53*l.*, 325*l.*

[*Contractions used in these Lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a, for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	8/0/0 0/0/0
Teak, E.I.	load	10/0/0 16/0/0
Sequoia, U.S. ft. cu		1/10 2/2
Ash, Canada	load	2/15/0 4/0/0
Birch, do.		2/15/0 4/0/0
Elm, do.		3/10/0 4/15/0
Fir, Dantsic, &c.		1/10/0 3/5/0
Oak, do.		2/15/0 4/15/0
Canada		5/10/0 7/0/0
Pine, Canada red		2/15/0 3/5/0
Do. Yellow		3/5/0 5/10/0
Lath, Dantsic, fath		4/10/0 5/10/0
St. Petersburg.		5/0/0 6/10/0
Wainscot, Riga, &c., log		3/0/0 5/5/0
Odessa, crown		3/0/0 5/5/0
Deals, Finland		
2nd & 1st std	100	7/0/0 8/10/0
Do. 4th & 3rd		7/0/0 8/0/0
Do. Riga		7/0/0 8/0/0
St. Petersburg, 1st yellow		9/10/0 12/0/0
Do. 2nd yellow		7/10/0 9/0/0
Do. white		8/0/0 9/10/0
Swedish		7/0/0 15/10/0
White Sea		7/10/0 15/0/0
Canada, Pine 1st		22/0/0 24/10/0
Do. do. 2nd		16/10/0 17/10/0
Do. do. 3rd, &c.		8/0/0 10/5/0
Do. Spruce, 1st		8/10/0 10/0/0
Do. do. 3rd and 2nd		6/10/0 7/5/0
New Brunswick		6/0/0 7/0/0
Battens, all kinds		5/0/0 21/0/0
Flooring boards, sq., 1 in. prep. 1st		0/9/0 0/14/0
Do. 2nd		0/6/0 0/11/0
Other qualities—		0/4/6 0/7/0
Cedar, Cuba	ft.	/3 /4
Honduras, &c.		/3 /4½
Mahogany, Cuba		/3½ /6
St. Domingo, cargo av.		/3½ 1/6
Mexican do. do.		/3 /4
Tobasco do. do.		/3½ /6
Honduras do.		/3½ /5½
Box, Turkey	ton	4/0/0 15/0/0
Rose, Rio		7/0/0 16/0/0
Bahia		6/0/0 15/0/0
Satin, St. Domingo		0/0/5 0/1/0
Satin, Porto Rico		0/0/6 0/1/6
Walnut, Italian		0/0/3½ 0/0/7

METALS.		
Iron—Pig, in Scotland	ton	2/1/3½ 0/0/0
Bar, Welsh, in London		5/12/6 5/15/0
Do. do. at works in Wales		5/2/6 5/5/0
Do. Staffordshire, in London		6/0/0 6/10/0
COPPER—British cake and ingot		41/10/0 41/15/0
Best selected		42/0/0 42/5/0
Sheets, strong		49/0/0 0/0/0
Chili bars		38/13/9 38/18/9
YELLOW METAL	lb	0/0/4½ 0/0/4½
LEAD—Pig, Spanish	ton	9/13/9 9/15/0
English com. brands		9/15/0 9/17/6
Sheet, English, 6 lbs. per sq. ft. and upwards		10/15/0 11/0/0
Pipe		11/15/0 0/0/0
ZINC—English sheet	ton	18/10/0 19/0/0
Vieille Montagne		19/10/0 0/0/0
TIN—Straits		60/0/0 62/10/0
Australian		60/5/0 60/15/0
English Ingots		63/0/0 63/10/0
Banca		60/10/0 60/15/0
Billiton		60/0/0 60/5/0

OILS.		
Linseed	ton	20/5/0 20/10/0
Cocoanut, Cochin		24/15/0 25/0/0
Do. Ceylon		22/15/0 23/0/0
Palm, Lagos		23/0/0 0/0/0
Rapeseed, English pale		21/15/0 22/0/0
Do. brown		20/10/0 0/0/0
Cottonseed ref.		16/17/6 17/15/0
Oleine		19/10/0 21/10/0
Lubricating, U.S.		4/0/0 5/0/0
Do. refined		5/0/0 12/0/0
TAR—Stockholm	barrel	1/1/0 1/1/6
Archangel		0/16/0 0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.*]

ABERDARE.—For the erection of school-buildings, &c., Navigation, for the Llanwoum School Board. Mr. A. O. Evans, architect, Post Office Chambers, Pontypridd:—

Watkin Williams	£4,649	A. J. Howell & Co.	£4,275
Jenkins & Son	4,620	D. Jenkins	4,190
John Rees	4,534	David Davies	4,045
D. Jones & Co.	4,492	Lissaman	3,988
Williams & James	4,409		

ABINGDON (Berks.).—For the erection of a library, &c., for the Masters and Governors of Christ's Hospital. Mr. J. G. T. West, architect, Abingdon:—

Bartlett Bros.	£2,435	T. Martin	£2,050
S. Orchard & Son	2,289	J. Buckle	2,035
W. Goodchild	2,185	J. Grant, Banbury*	1,849
G. Wentham	2,100	G. H. Wheeler	1,760
C. C. Robinson	2,083		

* Accepted.

ALNWICK.—For redressing, and then setting and paving narrow streets with old Whinstone setts, for the Urban District Council. Mr. Geoffrey Wilson, Town Surveyor, Council Offices Green Bat, Alnwick:—

	Per super yard. s. d.	
M. Appleby, Embleton Quarries*	3 6	Re-dressed, set, and paved complete.
W. S. Kearton	3 9	
George Ternent	1 8	For re-dressing only.
A. Varnham & Co.	1 6	do.
Lawson & Ternent	1 0	do.
Simon & Butters	1 6	do.

* Accepted.

ASHFORD (Kent).—For the erection of school buildings, residence, offices, &c., Victoria-road, for the School Board. Mr. H. J. Jeffery, architect, Ashford. Quantities by architect:—

	Board School. £ s.	Master's Residence. £ s. d.	Boundary-walls, &c. £ s. d.	Total. £ s. d.
G. Wade	3,980 0	975 0 0	1,424 0 0	6,379 0 0
Peters & Son	3,685 0	805 0 0	1,787 0 0	6,277 0 0
T. L. Fearon	3,800 0	840 0 0	1,565 0 0	6,205 0 0
D. C. Jones & Co.	3,890 0	956 0 0	1,350 0 0	6,196 0 0
W. J. Haisell	3,683 0	911 17 0	1,310 3 0	5,905 6 0
Wallis & Sons	3,587 0	900 0 0	1,396 0 0	5,883 0 0
Steddy & Co.	3,564 0	856 0 0	1,322 0 0	5,742 0 0
W. & T. Denne	3,496 0	830 0 0	1,358 0 0	5,684 0 0
W. Bourne & Son	3,500 0	825 0 0	1,275 0 0	5,600 0 0
Giles & Giles	3,486 0	805 0 0	1,294 0 0	5,585 0 0
K. Avard	3,519 0	822 0 0	1,131 0 0	5,476 0 0
T. J. Barden	3,460 0	838 0 0	1,147 0 0	5,445 0 0
A. E. Nunn	3,518 5	808 4 -	1,112 16 10	5,439 6 2
Girling & Coe	3,464 0	830 0 0	1,096 0 0	5,390 0 0
Davis & Leaney	3,420 0	800 0 0	1,132 0 0	5,352 0 0
G. H. Denne & Son	3,284 0	770 0 0	1,288 0 0	5,342 0 0
Hayward & Paramor	3,392 0	849 0 0	998 0 0	5,239 0 0
A. S. Ingleton	3,387 0	790 0 0	1,058 0 0	5,235 0 0
W. Baker	3,350 0	680 0 0	1,150 0 0	5,180 0 0
L. Seager	3,170 0	750 0 0	1,255 0 0	5,175 0 0
J. J. Hall	3,099 11	741 1 6	1,201 15 6	5,102 8 0
R. M. & H. Whiting	3,185 0	740 0 0	1,133 0 0	5,058 0 0
Amos & Foad	3,105 0	752 0 0	1,108 0 0	4,965 0 0
Horscroft & Mills, Maidstone*	3,127 0	594 0 0	1,293 0 0	4,944 0 0

* Accepted subject to the approval of the Education Department.

BRENTFORD.—For alterations and additions to the Old Bank, High-street, for Messrs. Woodbridge, Lacy, Hartland, Hibbert, & Co. Mr. S. Woodbridge, jun., architect and surveyor, Brentford:—

Foord & Sons	£160 0	J. Bloomer, Brentford*	£125 0
J. Barnes	130 12		

* Accepted.

BRIGHTON.—For the erection of buildings for technical school, Richmond-terrace, for the Town Council. Mr. F. J. C. May, C.E., Borough Engineer, Town Hall, Brighton. Quantities by Engineer:—

Peters & Son	£19,100	Parsons & Sons	£17,999
Cooke & Co.	19,000	Field & Co., 20, Preston-street, Brighton*	16,792
Longley & Co.	18,869		

* Accepted.

BRISTOL.—For alterations and additions, Queen's Head, Eastville. Mr. J. Beaven, architect:—

Perkins	£1,845 0	G. H. Wilkins	£1,642 0
Davis	1,834 0	Walters	1,600 0
Wilkins & Sons	1,749 0	Browning	1,596 5
J. Perrott	1,733 0	Hatherly & Carr (accepted)	1,595 0
Stephens, Bastow & Co., Ltd.	1,679 0		

[All of Bristol.]

CARDIFF.—For the extension of the Moorland-road Board School, Splotlands, Cardiff, for the Cardiff School Board:—

A. J. Howell & Co.	£8,940	David Davies	£7,990
Jas. Allan	8,698	E. F. Richards	7,875
Knox & Wells	8,431	Hy. Davies	7,762
Lattey & Co.	8,325	C. C. Dunn, Cardiff*	7,620
Harry Gibbon	8,200		

* Accepted.

CHESTER-LE-STREET.—For the execution of water-supply works, Springwell, High Usworth, Barmston, and Washington, for the Rural District Council of Chester-le-Street. Mr. R. B. Clark, engineer, Springwell. Quantities by Mr. Geo. Deveron, sanitary inspector:—

Geo. L. Manners	£966 0 0	J. G. Rutter & Sons	£609 11 3
John Howe	890 12 4	Wm. Carr	592 17 1
J. Manners	845 0 0	F. G. Kirtley	589 18 4
G. Pettigrew & Co.	782 0 0	John Henderson	553 17 3
G. E. Simpson	665 13 6	Joseph Goldsborough, Front-street, Chester-le-Street*	543 3 8
J. Lyons	659 16 9		
Gustance Bailey	633 0 5		
John Carrick	618 0 0		

* Accepted.

CORFE CASTLE (Dorset).—For the erection of school buildings for the Committee of the "Bankes" testimonial. Mr. Walter J. Fletcher, architect, Wimborne. Quantities by the tenderers:—

A. H. Green	£1,995	G. Linnington	£1,685
F. Merrick & Sons	1,795	W. J. Chinchen	£1,550
Bent & Vick	1,750	G. Pond	£1,500
Jenkins & Sons	1,698		

[No tender accepted, but fresh tenders asked for from the last three, some alterations in stone, &c., being made.]

G. Linnington (too late)	£1,585	W. J. Chinchen, Bournemouth*	£1,460
G. Pond	1,495		

* Accepted.

COWBRIDGE (Glam.).—For the restoration, &c., of Town-hall, for the Town Council. Mr. Chas. P. Fowler, architect, Old Bank Chambers, High-street, Cardiff:—

Hatherley & Carr	£865 0	J. S. Shepton	£751 0
Thos. Evans	798 0	A. G. James, Cowbridge (accepted)	737 17
Cox & Bardo	758 0		

DARTMOUTH.—For the execution of drainage works, for the Corporation of Dartmouth. Mr. T. O. Veale, Borough Surveyor, Dartmouth. Quantities by Surveyor:—

W. H. Sanders & Son	£1,812 0	R. C. Pillar*	£1,510 0
W. C. Shaddock	1,793 0	Ambrose & Welsh*	1,474 0
I. Shaddock	1,620 0	E. Pike*	1,440 0
T. Shaddock	1,542 10	Marcus Bridgman*	1,267 10
J. T. Whitham	1,537 0	W. Brenton*	1,249 0

* These firms have been asked to tender for 15-in. pipes instead of 18-in., as first intended to be used. 15-in. pipes were approved by Mr. S. J. Smith, Local Government Board Inspector, at the inquiry.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Infectious Diseases Hospital	Penzance Town Coun.	31*l.* 10*s.* 21*l.* and 15*l.* 15*s.*	Mar. 19
*Shops, Offices, Two Hotels, &c. Preston	N. Miller	150*l.* 100*l.* and 50*l.*	May 27
Sewerage Scheme	Barrhead (N.B.) Town Commissioners	31*l.* 10*s.*	April 30

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Laundry Buildings at Asylum, Richmond, Ireland	Lunacy Commrs.	W. H. Byrne	Mar. 18
*Supply of Coal	Corporation of London	*Official*	do.
*Works and Materials	St. Giles Bd. of Works	do.	do.
*Underground Convenience	do.	G. Wallace	do.
Seven Villas, Burnley-road, Padiham, Lancs.	H. Murphy	.....	Mar. 19
Residence, Linthwaite, Yorks.	.....	J. Berry	do.
Offices, Council Chamber, &c. St. George's-street	Hebden Bridge U.D.C.	J. Sutcliffe	do.
Additions, &c. to Daviot Asylum, Aberdeen	Directors of Royal Asylum	Smith & Kelly	do.
Additions to Boot Factory, Armley, Leeds	D. Evans & Sons	C. F. Wilkinson	do.
Setts, Kerbs, Flags, &c.	Ramsbottom (Lancs.) U.D.C.	A. W. Smith	do.
Cast-iron Pipes (1,000 yards)	Todmorden (Lancs.) Corp.	G. E. Saville	do.
*Paving Works	Westminster Vestry	G. R. W. Wheeler	do.
Three Houses, Malpas, near Truro	Burley & Bros.	W. Swift	Mar. 20
House and Two Shops, Regent's-road, Great Yarmouth	Z. Rayson	A. S. Hewitt	do.
Bakery, &c. Cramlington, Durham	Local Co-op. Soc.	J. G. Crone	do.
Premises, Boothroyd-lane	Dewsbury Liberal Club	W. & D. Thornton	do.
Welsh Setts, Flags, &c.	Littleborough (Lancs.) U.D.C.	G. H. Wild	do.
Six Cottages, Thornhill Lees, near Dewsbury	W. H. Ramsden	.....	do.
Broken Granite and Paving Bricks	Fenton (Staffs) U.D.C.	S. A. Goodall	do.
Flagging, Channelling, &c.	Birkenhead Corp.	C. Brownridge	do.
House, Stables, &c. St. George's Hill, near Weybridge	.....	E. M. Bruce Vaughan	do.
Five Shops and Showrooms, Pellon-lane, Halifax	.....	C. F. L. Horsfall & Son	do.
*Underground Convenience	Hammersmith Vestry	H. Mair	do.
*Widening Rockingham County Bridge	Middlesex C. C.	*Official*	do.
Retort House, Chimney Stack, &c. Pontycymmer, Glam.	Garw & Ogmore Gas Co.	do.	do.
Pipe Sewers (1,000 yards), Shore-road	Littleborough (Lancs.) U.D.C.	do.	do.
Cottage, Stables, &c. Blue Boar-lane	Rochester Corp.	do.	do.
Granite Road Metal	Doncaster R.D.C.	do.	Mar. 21
Levelling, Paving, &c. St. Anne's-road and Church-road	St. Anne's - on - Sea U.D.C.	do.	do.
Stabling and other Buildings, Harborne	Birmingham Corp.	W. S. Till	do.
Cottages, New Mills, Newcastle-on-Tyne	R. J. Jefferson	.....	do.
Dairy Factory, Worthy-place, Weston-super-Mare	Mr. Minifie	.....	do.
Roadmaking, Wheatley Valley, Halifax	.....	Petty & Ives	Mar. 22
*Road Works and Erection of Iron Fencing	Walthamstow U.D.C.	G. W. Holmes	do.
Macadam (4,000 tons)	Beverley R.D.C.	A. Beaumont	Mar. 23
Farm Buildings, Upton, Chester	.....	Stanhope & Bull	do.
Additions to Museum and Art School	Warrington Corp.	Thos. Longdin	Mar. 25
Two Cottages, Portaferry, Ireland	.....	M. Wilson	do.
Nine Houses, Pellon Station, Halifax	.....	M. Hall	do.
Additions, &c. to Schools, St. John's-lane	Canterbury School Bd.	W. J. Jennings	do.
River Walling	Nelson (Lancs.) Corp.	J. W. Bradley	do.
Warehouse, North Mall Distillery	Cork Distilleries Co. Lim.	R. Walker	Mar. 26
*Road Materials	Bromley U.D.C.	*Official*	do.
*Paving Works	Lewisham Bd. of Wks.	do.	do.
*Construction of Pipe Sewers, &c.	Willesden Dist. Coun.	O. Claude Robson	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Premises	Staines and Egham Co-operative Society	R. Fitt	Mar. 26
*12-h.p. Portable Steam Engine	West Ham Council	L. Angell	do.
*Bricks and York Stone	do.	do.	do.
*Paving Works	Tottenham U.D.C.	P. E. Murphy	do.
Storage Reservoir, Dunton Burn, Fenwick	Kilmarnock (N.B.) Corp.	J. & A. Leslie & Reid	do.
Sewerage Works (1,100 yards)	Keighley R.D.C.	Barber, Hopkins, & Co.	do.
*Workshop and Stores	Stockport Corp.	S. Meunier	Mar. 27
*Ten Coal Wagons	do.	do.	do.
*Drainage Works, Marsh District	Boro' of Ipswich	Shone & Ault	do.
Whinstone Metal, West Kilpatrick, &c.	Glasgow Corp.	A. Wilson	do.
Stoneware Pipe Sewers, &c. Kersley Hall Farm	Kersley (Lancs.) U.D.C.	T. Nuttall	do.
Malt House, &c. Gloucester	G. & W. E. Downing	W. B. Wood	do.
Ejector Stations, House, &c.	Ipswich Corp.	Shone & Ault	do.
Storage Tank, &c.	Knaresborough U.D.C.	*Official*	do.
Municipal Buildings, Queen-street	King's Lynn Corp.	Tree & Price	Mar. 28
Iron Bridge, near Builth	.....	W. Williams	do.
Sewering and Road Works, Gray-street	Workington U.S.A.	W. L. Eaglesfield	do.
Pipe Sewer, Harrington-road	do.	do.	do.
Additions, &c. to Premises, Pasture-street, Grimsby	E. Ainger	D. Pick	Mar. 29
*Road Materials	Wood Green U.D.C.	C. J. Gunyon	do.
*Dredging and Removal of Mud from Old River	Blofield R.D.C.	*Official*	do.
*Timber-Framed Firing Battery, &c. &c. Buddon, Forfarshire	Admiralty	do.	do.
Outfall Sewers, Pumping Station, &c.	West Bridgford (Notts) U.D.C.	W. H. Radford	Mar. 30
*Concrete and Brick Foundations	Sheffield United Gas Light Co.	F. W. Stevenson	do.
Granite Macadam	King's Lynn Corp.	E. J. Silcock	Mar. 31
Pipe Sewers, Shafts, &c. Cliff Vale	Hastings Corp.	P. H. Palmer	April 1
Main Sewer and Tank, Rock-a-Nore	do.	do.	do.
*Sewerage Works	Ware R.D.C.	Bailey, Denton, Son, & North	do.
*Erection of Schools	Edmonton Sch. Bd.	P. B. Freeman	April 2
*Sewer, Creswick-road	Acton U.D.C.	*Official*	do.
*Post Office, East Grinstead	Com. of H.M. Works	do.	do.
Baths, Machinery, &c.	Norwich Corporation	A. E. Collins	do.
*Construction of Pipe Sewers, &c.	Wimbledon U.D.C.	C. H. Cooper	do.
Subway, Crooked Billet Level Crossing, Newcastle-on-Tyne	N. E. Ry. Co.	*Official*	April 3
*Well Sinking, &c.	Suffolk County Asylum	G. & F. W. Hodson	April 6
Water Conduit	Belfast Water Com.	M. Macassey	April 11
Sewerage Works, Gainsborough	Skelton and Brotton U.D.C.	D. Balfour	April 26
*Alterations at East Cliff Houses, Margate	St. Pancras Guardians	C. J. Reeve	No date
Wesleyan Chapel, Guiseley, Yorks.	.....	Walker & Collinson	do.
Villa, Llangattock Estate, Caerleon, Mon.	.....	Swash & Bain	do.
Three Houses, Attercliffe, Sheffield	.....	J. T. Earle	do.
Stores and House, Haveley Town, Yorks.	.....	do.	do.
Mill Chimney, Laisterdyke, Bradford, Yorks.	.....	G. Ogden	do.
Hotel Buildings (Roebuck Hotel), Burnley	J. Kenyon	C. Parsons	do.
*New Schools, Hackney	.....	A. Cox	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
Highway Surveyors	Newton Abbott R.D.C.	.....	Mar. 19
Highway Surveyor	Valley (Wales) R.D.C.	.....	do.
*Engineering Assistant	Blackburn Corp.	150*l.*	Mar. 21
Highway Surveyor	Sherburn (Yorks.) R.D.C.	.....	Mar. 25
*Clerk of Works	Leighton Buzzard U.D.C.	3*l.* 10*s.*	Mar. 26
*Surveyor	Stratford-upon-Avon T.C.	200*l.*	Mar. 27
*Surveyor and Inspector of Nuisances	Swanage U.D.C.	100*l.*	April 1
Engineer, Manchester	British Steam Users' Insurance Society	.....	No date
Highway Surveyor	Oxford C.C.	150*l.*	do.

Those marked with an asterisk (*) are advertised in this Number. ***Competitions, p. iv.*** ***Contracts, pp. iv., vi., vii., viii., and xxi.*** ***Public Appointments, pp. xviii. and xxi.***

DEWSBURY.—For rebuilding the "George" Hotel, Boothroyd-lane. Mr. W. H. D. Horsfall, architect, 9, Harrison-road, Halifax:—

Charles Whitehead & Sons	£215 10
Wm. H. Clegg	204 0
Frank Newsome	48 0
Jonas W. Thornton	42 0
William Parker	38 0
	£545 10

DEWSBURY.—For alterations to warehouse, Market-place, for the Corporation:—

G. Whitehead	£560 8 9	E. Chadwick & Son	£490 0 0
Garthwaite & Blackburn	562 8 9	J. Pickersgill	436 11 3
T. Fawcett & Son	550 10 0	S. Armitage & Son	432 7 9
W. R. Thompson	540 0 0	J. Snowden & Sons	415 0 0
C. Whitehead & Sons	525 12 5	Wm. Scott & Sons, Dewsbury*	414 10 0
Ellis Brooke	502 9 1½		

* Accepted.

DOWNHAM MARKET (Norfolk).—For alterations, &c., to school buildings, for the Southery School Board. Mr. C. Porter, architect, Southery:—

C. Hepwell	£373 16	Elworthy & Sons, Upwell (accepted)	£300 6
Drake & Purdy	315 0	T. Simpson	283 0
Collins & Barber	325 10		

EAST COWES (I. of W.).—For the completion of a well in brickwork and iron cylinders; also erection of engine-house for the Urban District Council. Messrs. Lemon & Blizard, architects, Castle-lane, Southampton:—

W. Brown & Son	£1,550 15	Playfair & Toole, Southampton*	£942 0
Tilley & Sons	1,438 8		
H. W. Bull	947 0		

* Accepted.

ECCLES (Lancs.).—For paving, flagging, &c., Castle-street, and eight others, for the Highway Committee. Mr. A. C. Turley, C.E., Borough Surveyor, Town Hall, Eccles:—

Albion Grove.—Johnson Bros., & Smith, Patricroft	£154 15 9
Alexandra-road (sewering only).—Johnson Bros., & Smith, Patricroft	45 2 11
Bk. Shakespere Crescent.—J. & J. Lee, Stockport	183 15 5
Bute-street.—Johnson Bros., & Smith, Patricroft	162 2 2
Castle-street.—Snape & Sons, Eccles	311 13 1
Clifford-street.—Johnson Bros., & Smith, Patricroft	339 6 1
Green-street,—Snape & Sons, Eccles	818 14 1
Irwell Grove.—Snape & Sons, Eccles	573 1 3
Lorne-street.—Johnson Bros., & Smith, Patricroft	253 7 2

[All accepted subject to schedules being found satisfactory by Borough Surveyor.

LANGPORT (Somerset).—For the execution of waterworks (3 contracts), for the Rural District Council. Mr. J. T. Hawkins, C.E., Somerton. Quantities by engineer:—

Contract No. 1.—Constructive Works.

J. T. Price	£2,935 16 0	J. B. Petter	1,524 17 0
R. R. Tacey	2,179 5 8	R. J. Stead	1,467 0 0
Henry Shardlow	2,145 0 0	Herbert Weldon	1,457 19 0
S. Morse	1,942 0 0	J. T. Welch	1,432 3 0
Alexander Poole	1,903 14 6	Thos. Lydford, Castle Cary*	1,398 19 6
H. W. Pollard	1,898 17 3	B. Cooke & Co.	1,357 9 3
Barnes, Chaplin, & Co.	1,708 11 6	Wm. Newman	1,355 2 8

[Engineer's estimate, £1,345].
* Recommended for acceptance.

Contract No 2.—Supplying and Laying Pipes, Valves, &c.

R. Williams & Co.	£4,464 14 1	Gardner & Hopperfield	£3,566 11 1
Batchelor & Snowden	4,299 13 1	Bond & Hitchcock	3,551 18 4
Wm. Sparrow	4,232 11 2	Staveley Coal & Iron Co.	3,450 5 1
W. S. Snaddock	4,227 3 11	Bishop Bros.	3,442 16 10
B. Cooke & Co.	4,074 0 9	W. H. Saunders & Co.	3,333 0 0
Easton, Anderson, & Goulden	4,028 17 9	S. Morse	3,318 0 0
Barnes, Chaplin & Co.	3,992 7 4	R. A. Tacey	3,311 5 2
S. Havanah	3,703 10 4	Henry Shardlow	3,277 0 0
S. Havanah	3,567 4 4	Smith & Marchant	3,276 18 10
Hawking & Bert	3,903 15 0	Hbt. Weldon	3,235 14 3
Jas. B. Petter	3,791 17 3	Biggs, Wall, & Co.	3,215 6 6
J. Peattie	3,742 13 8½	Clay Cross Co.	3,175 7 4
J. F. Price	3,727 0 0	H. W. Pollard	3,167 10 0
R. J. Stead	3,680 0 0	Wm. Newman	3,693 7 9
L. H. Green	3,619 17 9	Thos. Lydford	2,878 15 4
J. T. Welch	3,571 15 8		

[Engineer's estimate, £3,276 13s. 7d.]

Contract No. 3.—Engines and Gas Plant.

	Single. £ s. d.	Duplicate. £ s. d.	Total. £ s. d.
Coalbrookdale Co.	514 15 3	313 15 3	828 10 6
Humpidge, Holboro & Co., Ltd.	670 0 0	161 0 0	831 0 0
Fielding & Platt	523 2 0	324 2 0	847 4 0
Eaton & Bessemer	730 6 10	123 15 6	860 5 6
Crossley Bros.*	—	—	864 0 0
Thornton & Crebbin	—	—	870 0 0
Stoddart & Pitt	578 0 0	308 0 0	886 0 0
Wm. Sparrow	798 0 0	153 10 0	951 10 0
Weyman & Hitchcock	845 9 0	151 4 0	996 13 0
James Petter	—	—	1000 0 0
Sibley & Son	843 19 6	158 7 0	1002 6 6
Robert Warner & Co.	630 10 0	421 7 0	1051 17 0
Tangyes, Ltd.	672 10 0	402 10 0	1075 0 0
Easton, Anderson & Goolden. With Tangyes' engine	863 0 0	215 0 0	1078 0 0
	1006 0 0	215 0 0	1221 0 0
Clay, Henriques, & Co.	913 13 6	219 16 0	1133 9 6
J. F. Price	—	—	1200 0 0
Geo. Waller	862 8 0	560 18 0	1423 6 0
Ferguson	—	—	1493 16 0
Henry Shardlow	920 0 0	960 0 0	1180 0 0

Contract No. 3a.—Oil-Engines and Pumping Plant.

	Single. £ s. d.	Duplicate. £ s. d.	Totals. £ s. d.
Sibley & Son	346 10 6	335 0 0	681 10 6
Do., with Hornsby's engine and self-starter	75 extra		756 10 6
Easton & Bessemer	410 0 0	383 10 0	793 10 0
Crossley Bros.†	419 10 0	390 10 0	810 0 0
Stoddart & Pitt	433 11 0	381 0 0	814 11 0
Fielding & Platt	430 0 0	400 0 0	830 0 0
Thornton & Crebbin	—	—	844 0 6
Robert Warner	443 3 1	433 5 1	876 8 2
Wm. Sparrow	450 0 0	440 0 0	890 0 0
Weyman & Hitchcock	500 4 4	420 15 0	920 19 4
Coalbrookdale Co.	476 16 9	462 11 9	939 8 6
Jas. Petter	500 16 8	495 16 8	996 13 4
Easton, Anderson, & Goolden With Crossley's engines	499 10 6	501 10 0	1001 0 6
With Hornsby's engines	579 0 0	590 0 0	1169 0 0
John Warner	545 10 0	500 0 0	1045 10 10
Flemming & Ferguson	500 0 0	—	1288 12 0
Clay, Henriques, & Co.	707 6 0	697 6 0	1404 12 6
Geo. Waller	722 18 0	695 18 0	1418 16 0
Shardlow	660 0 0	600 0 0	1200 0 0

* Full duplicate plant recommended for acceptance by Committee.
† Recommended by Committee.

ENFIELD.—For building residence, Wellington-road, Bush Hill Park, Enfield, for Mr. M. Buttfield. Mr. T. Potter, architect, Sevenoaks:—

Morrison	£1,256	Brown	£1,178
Gogg	1,224	White	1,152
Cordell	1,196	Percival Hart, 303, West Green-road, N., and at Bush Hill Park (accepted)	1,120
Patman	1,195		
Fairhead	1,181		

FILEY (Yorks.).—For the execution of sewerage works (contract A), for the Urban District Council. Messrs. Fairbank & Son, engineers, 17A, Lendal, York:—

Jas. Oates	£1,951 0 0	Brumby Robinson	£1,295 5 0
Jas. Dickson	1,575 7 6	T. Bell	1,412 9 0
Parker & Sharpe, York*	1,299 9 10	Anthony Lyons	1,244 18 0
		J. Sangwin	1,279 3 5

* Accepted.

GOOLE.—For alterations to the "Steam Packet" tavern, George-street. Mr. W. B. Andrews, architect, Booth Ferry-road, Goole:—

All Trades.

W. Vickirman	£290 3 8	H. Kelsey & Sons	£243 0 0
W. Dixie	290 0 0	Jackson Bros., Goole*	198 0 0
W. Featherstone	267 0 0		

Plumbing only.

Ed. Shirtcliffe	£69 6 6	Webster & Bickerton	£60 9 10
G. & J. Mapplebeck	62 5 0	W. T. Lumley	55 0 0

* Accepted.

BEDFORD.—For the supply of slag, for the Beds. County Council. Mr. W. N. Leete, County Surveyor:—

	Bedford.	Blunham.	Cardington.	Fenny Stratford.	Harlington.	Henlow.	Irchester.	Kimbolton.	Langford Siding.	Leagrave.	Leighton.	Millbrook.	Oakley.	Potton.	Ridgmont.	Sharnbrook.	Southill.	Stanbridge.	Turvey.	Woburn Sidings.
Approximate quantity	490	170	180	50	100	50	110	205	290	150	130	140	300	135	300	1,090	30	100	250	270
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
ip Co.....	6 0	6 8	6 0	6 5	6 4	6 4	—	5 5	6 11	6 1	6 8	5 10	6 5	6 8	6 7	5 7	6 1	6 10	6 0	6 7
J. E. Page.....	5 10	6 7	5 11	6 4	6 3	6 3	5 0	6 1	6 11	6 4	6 7	6 1	5 6	6 7	6 7	5 2	6 1	6 9	5 11	6 5
,, ...	6 3	6 7	—	5 10	—	7 5	—	—	—	—	6 0	6 0	—	6 11	6 2	—	6 11	6 0	—	6 0
,, ...	4 10	5 7	4 11	5 4	5 3	5 3	3 10	5 1	5 11	5 4	5 7	—	4 6	5 7	5 7	4 0	5 1	5 9	4 11	5 5
me (Hursbury Stone)	—	6 6	—	5 10*	—	—	—	—	—	—	6 1*	6 0	—	6 3	6 0*	—	—	6 1*	—	5 11*
Grimley & Son (Kettering Stone)	5 6*	5 9*	5 8*	7 1	5 11*	5 11*	4 9*	5 2*	6 5*	6 1*	7 6	5 9*	5 3*	6 1*	6 0	4 11*	5 10*	6 9	5 8*	6 5

* Accepted.

J. Jerome, Linslade, Leighton Buzzard .....£850 | W. Grimley & Son, Sutton Bridge, Lincolnshire £3,780

NDON.—For road making and paving works for the Willesden District Council. Mr. O. Claude Robson, Engineer and Surveyor, Public Offices, Dyne-road, Kilburn, N.W.:—

	Ashburnham Road.	Casselden Road.	Balmoral Road.	Burgoyne Road.	Buxton Road.	Chapter Road (West).	Chapter Road (East).	Churchill Road.	Huddlestone Road.	Lechmere Road.	Osborne Road.	Sandringham Road.	Windsor Road.	Beaconsfield Road.	Minet-gardens.	Woodville Road.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
W. Neave & Son ..	1395 0 0	192 0 0	1263 0 0	1154 0 0	529 0 0	1399 0 0	705 0 0	650 0 0	104 0 0	110 0 0	656 0 0	515 0 0	819 0 0	773 0 0	260 0 0	558 0 0
J. Mowlem & Co...	897 0 0	175 0 0	1019 0 0	905 0 0	423 0 0	978 0 0	550 0 0	535 0 0	84 0 6	86 0 0	528 0 0	413 0 0	645 0 0	598 0 0	225 0 0	470 0 0
R. Ballard, Ltd. ..	897 0 0	150 0 0	1097 0 0	925 0 0	419 0 0	1075 0 0	560 0 0	572 0 0	87 0 0	86 0 0	581 0 0	447 0 0	687 0 0	635 0 0	199 0 0	496 0 0
Robertson & Grant	1414 0 0	249 0 0	1474 0 0	1323 0 0	576 0 0	1576 0 0	863 0 0	774 0 0	116 0 0	131 0 0	774 0 0	608 0 0	998 0 0	973 0 0	357 0 0	615 0 0
T. Free & Sons ..	972 0 0	240 0 0	1450 0 0	1250 0 0	575 0 0	1475 0 0	780 0 0	710 0 0	115 0 0	125 0 0	723 0 0	583 0 0	890 0 0	530 0 0	300 0 0	645 0 0
G. Wimpey & Co.	1169 0 0	189 0 0	1266 0 0	1121 0 0	503 0 0	1371 0 0	676 0 0	698 0 0	106 0 0	111 0 0	642 0 0	503 0 0	793 9 0	745 0 0	254 0 0	573 0 0
Nowell & Robson..	1273 0 0	174 0 0	1148 0 0	1049 0 0	481 0 0	1272 0 0	641 0 0	592 0 0	95 0 0	99 0 0	597 0 0	470 0 0	745 0 0	702 0 0	237 0 0	505 0 0
H. Lee	1262 8 6	196 2 11	1195 15 0	1226 5 2	564 17 0	1457 10 5	776 13 8	744 11 2	113 1 1	125 11 5	741 11 7	547 8 3	834 4 6	768 8 6	273 8 11	578 15 8
T. Adams.....	941 0 0	163 0 0	1059 0 0	945 0 0	419 0 0	1009 0 0	579 0 0	548 0 0	91 0 0	92 0 0	529 0 0	417 0 0	651 0 0	625 0 0	220 0 0	489 0 0
E. Rogers.....	893 0 0	160 0 0	1150 0 0	950 0 0	430 0 0	1100 0 0	573 0 0	583 0 0	90 0 0	91 0 0	533 0 0	459 0 0	700 0 0	655 0 0	200 0 0	483 0 0
G. Bell	—	—	1067 0 0	944 0 0	421 0 0	1072 0 0	577 0 0	562 0 0	—	—	542 0 0	446 0 0	702 0 0	—	—	—
E. W. Wilson	—	—	1476 18 0	—	594 13 0	1382 14 0	709 1 0	755 16 0	121 9 0	124 14 0	767 11 0	602 2 0	930 7 0	—	—	—
W. Hollingsworth .	910 0 0	159 0 0	1112 0 0	1035 0 0	449 0 0	1149 0 0	599 0 0	567 0 0	89 0 0	91 0 0	559 0 0	452 0 0	695 0 0	629 0 0	222 0 0	458 0 0
A. & F. Manuelle	892 0 0	150 0 0	1085 0 0	1003 0 0	430 0 0	1125 0 0	580 0 0	552 0 0	84 0 0	85 0 0	533 0 0	434 0 0	674 0 0	603 0 0	206 0 0	435 0 0
Engineer's estimate	947 0 0	162 0 0	1076 0 0	963 0 0	421 0 0	1066 0 0	582 0 0	553 4 0	84 0 0	85 0 0	544 0 0	415 0 0	663* 0 0	605 0 0	219 0 0	483 0 0

TENDRING (Essex).—For alterations to old schools and building new class-rooms, boundary-walls, offices, &c., for the Tendring School Board. Mr. J. W. Start, architect, Colchester, Clacton-on-Sea, and Harwich. Quantities by the architect:—

	Alterations.	Class-rooms.	Covered Playgrounds, Offices, Drainage, &c.	Gravelling Playgrounds.	Boundary Walls, &c.	Total.	Park Fencing to Boundary.	Iron Fencing.
	£ s.	£ s. d.	£ s.	£ s.	£ s.	£ s. d.	£ s.	£ s.
T. Canham	173 15	745 10 0	315 0	319 0	170 5	1,725 0 0	103 15	126 0
R. Beaumont	190 0	775 0 0	300 0	260 0	175 0	1,700 0 0	125 0	152 0
Girling & Coe	137 0	738 0 0	299 0	242 0	164 0	1,630 0 0	118 0	141 0
Smith, Beaumont, & Dawson, Harwich*	136 6	617 13 6	316 14	306 7	219 3	1,596 4 9	118 13	141 2
E. West	169 0	720 0 0	312 0	199 0	166 0	1,546 0 0	112 0	160 0
H. J. Linzell.....	169 0	607 0 0	303 0	294 0	163 0	1,536 0 0	97 0	154 0
E. Saunders	†	840 0 0	294 0	224 0	156 15	1,514 0 0	224 0	156 0

* Accepted for alterations to new class-rooms, covered playgrounds, and offices, total, £1,070 13s. 6d. † Estimate not complete.

KEIGHLEY.—Accepted for the erection of premises for the Temperance Society. Messrs. W. & J. B. Bailey, architects, Keighley and Bradford. Quantities by the architects:—
Masonry and Bricklaying.—Sugden-Mitchell & Sunderland, Oakworth, near Keighley
Joinery.—Iveson Taylor, Lees, near Keighley
Slating.—William Thornton, Bingley .....
Plastering.—Joseph King, Keighley .....
Plumbing.—W. & J. Harrison, Keighley ....
Painting.—Frank Petty, Keighley .....
£5,687 17 8

LEIGHTON.—For alterations and additions to infants' school, Beaudesert, for the Leighton School Board. Mr. J. T. Lawrence, Leighton Buzzard, architect. Quantities by architect:—

Tutt Bros.	£942 0	D. Cook & Son	£878 0
F. Adams	909 0	Hart & Atkins.....	847 10
G. Garside & Son	900 0	Edwards Bros.....	788 0

LONDON.—For erecting Newington Public Baths and Washhouses, Manor-place, Walworth. Mr. E. B. I'Anson, architect, 7A, Laurence Pountney Hill, E.C. Quantities by Messrs. Batstone Bros., 110, Cannon-street, E.C.:—

	General work.	For setting boilers, &c.	Total.
I. Tyerman	£28,000	£550	£28,550
Prestige & Co.	27,924	570	28,494
Rider & Sons	27,820	495	28,315
H. Loratt	27,750	535	28,285
Godson & Sons	27,681	587	28,268
Colls & Son	27,564	545	28,109
Mowlem & Co.	27,460	470	27,930
Bell & Gash.....	27,248	600	27,848
W. H. Lorden.....	27,000	550	27,550
E. J. Saunders	27,000	500	27,550
Burman & Sons	26,700	700	27,400
Smith	26,698	559	27,257
D. Charteris.....	26,567	527	27,094
Allen & Sons	26,349	502	26,851
J. Carmichael	26,290	520	26,810
Shillitoe & Sons	26,250	500	26,750
W. Wallis.....	25,728	548	26,276
Johnson & Co., Limited..	25,653	546	26,199
Kirk & Randall	25,606	544	26,150
Grover & Sons	25,384	553	25,034
Laurence & Sons	25,346	520	25,866
J. Marsland.....	24,945	645	25,590
Treasure	24,914	490	25,404
B. Nightingale	24,933	443	25,376
Patman & Fortheringham	24,871	480	25,351
H. L. Holloway.....	24,440	550	24,990
G. Grey Hill.....	24,490	456	24,946
Balaam Bros. (accepted)..	24,383	533	24,916

LONDON.—For preparing and paving with asphalte a roadway at the workhouse, High-street, for the Poplar Union Guardians:—

Lagdon & Crawford £605	10	J. Mowlem & Co. £563	0
Wm. Griffiths	595 0	G. J. Anderson, North-street, Poplar*.....	548 0
Wm. Gibbs.....	575 10		
Brunswick Rock Asphalte Paving Co.	575 0		

* Accepted.

LONDON.—For rebuilding river wall, Queen's-road, Hammersmith, for the Vestry of St. Mary Abbott's, Kensington. Mr. Wm. Weaver, M.Inst.C.E., Surveyor, Town Hall, Kensington, W.:—

Edmund Iles £1,537	Geo. Wimpey & Co., Hammersmith (accepted).....£440
Joseph Mears 565	
Geo. Munray & Sons 551	

LONDON.—For pulling down and rebuilding 110, High-street, Poplar, E. Messrs. C. Foulsham & Herbert Riches, joint architects, Bromley, E., and 3, Crooked-lane, King William-street, E.C.:—

J. T. Robey.....£837	Sheffield Bros.....£845
J. K. Coleman 860	White & Son 780
T. Osborn & Sons..... 850	S. Salt (accepted)..... 777

LONDON.—Accepted for re-building 57, 58, 59, 60, and 61, Chiswell-street, and 96, Milton-street. Mr. R. M. Roe, architect:—
W. F. Coney, "Fenchurch Station Chambers," 66, Fenchurch-street £6,100

LONDON.—For laying 6,506 superficial yards or thereabouts of 9 in. by 3 in. by 5 in. creosoted deal blocks on 6 in. Portland cement concrete, including all excavation and carting, Pembridge Villas, for the Vestry of St. Mary Abbott's, Kensington. Mr. Wm. Weaver, M.Inst.C.E., Surveyor to the Vestry:—

	Per yard super. s. d.		Per yard super. s. d.
Edwd. Parry	11 0	Jno. Mowlem & Co.	9 11
Newell & Robson	10 0	Improved Wood Pavement Co., Ltd. (accepted)	9 5
Geo. Wimpey & Co.....	10 8		

LONDON.—For the erection of a new police-station at Kenley, for the Receiver for the Metropolitan Police District. Mr. John Butler, architect. Quantities by Mr. W. H. Thurgood:—

Graham £4,200		Bullock £3 870	
Grover 4,097		Lascelles 3,859	
Higgs & Hill 3,984		Hart..... 3,857	
Lathey 3,950		Richardson 3,789	
Smith 3,950		Page 3,690	
Holloway Bros. 3,885			

LONDON.—For the erection of loose boxes at Brookfield Stud, Highgate, for Mr. W. Burdett Coutts, M.P. Mr. G. S. Stevens, architect, 30, Grove-terrace, Highgate-road, N.W.:—

Munday & Sons.....£426		W. Barnett £365	
J. W. Dixon 369			

Alterations and additions to riding school at the above:—

		For removing Granary.
J. W. Dixon	£772 0 0	£45 0 0
Holloway Bros.	713 0 0	52 0 0
Munday & Sons.....	702 0 0	50 0 0

Constructional ironwork and new roof over yard:—
A. & G. Main £145

LONDON.—Accepted on schedule of prices for fireproof floors at the Patent Office Extension, Block No. 3:—
Mark Fawcett & Co.

LONDON.—For the erection of pot-house and stabling at rear of the "Ashenden Arms," Glyn-road, Homerton, for Mr. G. T. Poole. Mr. G. S. Strevens, architect:—

G. Wales £147		H. Parsons £137	
C. Simpson 138			

LONDON.—Accepted for alterations to No. 2a, Grand Parade, Finchley-road, for Lloyd's Bank. Mr. Horace Field, architect:—
H. G. Davenall, Southampton Works, Gospel Oak £595

LONDON.—For erecting a manual-training centre in connexion with the Kilburn-lane School, Kensal Green, for the School Board for London. Mr. T. J. Bailey, Architect:—

G. H. Sealey £985	0 0	H. C. Clifton £566	0 0
S. Polden 981	5 0	F. T. Chinchen 565	10 0
G. Lyford..... 705	0 0	R. A. Yerbury & Sons, Kilburn, N.W.* 561	5 0
W. T. Ballard 624	10 3		

* Recommended for acceptance by the Works Committee.

LONDON.—For providing a new water-closet for the Infants' Teachers of the Lewisham Bridge School, and also for increasing the office accommodation of the infants' department, for the School Board for London. Mr. T. J. Bailey, Architect:—

W. & H. Castle £397	0	J. & A. Oldman £288	0
R. A. Marshall..... 385	17	J. & C. Bowyer 255	0
G. Parker 373	0	W. Akers & Co., South Norwood* 243	0
Rice & Son 324	0		
W. V. Goad 290	0		

* Recommended for acceptance by the Works Committee.

LONDON.—For enlarging the school in Webber-row, Southwark, by 259 places, for providing a new house for the schoolkeeper, with a cookery centre underneath, and for other work, for the School Board for London. Mr. T. J. Bailey, Architect:—

W. Downs £12,547		E. Lawrance & Sons £11,741	
J. & M. Patrick 12,188		B. E. Nightingale 11,631	
Killby & Gayford..... 12,098		C. Miskin 11,588	
Foster & Dicksee 11,999		D. Charteris, Page-street, Westminster*..... 11,361	
J. Longley & Co..... 11,910			

* Recommended for acceptance by the Works Committee.

LONDON.—For refitting the offices of the boys' and infants departments in the Adys-road School, East Dulwich, with stoneware troughs, and for providing a partly new system of drainage at the same time, for the School Board for London. Mr. T. J. Bailey, Architect:—

J. & C. Bowyer £1,018	0 0	E. Triggs £862	0 0
W. V. Goad 966	0 0	H. Mallett..... 853	0 0
Star & Son 939	2 3	G. Parker..... 850	0 0
Holliday & Greenwood 939	0 0	J. Frampton, 1, Henslowe-road, East Dulwich* 820	0 0
W. Akers & Co. 915	0 0		
G. Newton 870	0 0		

* Recommended for acceptance by the Works Committee.

LONDON.—For the erection of a school in Bow Creek, to provide accommodation for 402 children, and for a house for the schoolkeeper, and a hall, for the School Board for London. Mr. T. J. Bailey, Architect:—

B. E. Nightingale £12,898		S. & W. Pattinson £8,935	
Gregar & Son 10,054		J. Mowlem & Co. 8,923	
G. E. Wallis & Sons 9,868		C. Cox, Hackney*..... 8,590	
A. Reed & Son..... 9,836		D. Charteris † 8,139	
W. Goodman 9,703			

* Recommended for acceptance by the Works Committee.
† Withdrawn.

LONDON.—For the erection of a new police-station at Clark's Buildings, W.C., for the Receiver for the Metropolitan Police District. Mr. John Butler, architect. Quantities by Mr. W. H. Thurgood:—

Lathey £7,679	0	Higgs & Hill £7,384	0
Newman 7,560	0	Holloway Bros. 7,377	0
Smith..... 7,437	0	Willmott 7,249	10
Hart 7,400	0	Grover 7,191	0
Derry 7,394	0	Scrivener..... 6,977	0
Richardson 7,387	0	Lawrence & Son 6,949	0

LONDON.—For the erection of factory shed in rear of 85, 87, and 89, Vauxhall Walk; and warehouse, No. 97, Vauxhall Walk, as per plans and specifications prepared by Mr. J. A. J. Woodward, 60, Kennington Oval. Quantities by Mr. W. H. Woodward:—

	Factory.	Warehouse.	Total.
Maides & Harper £1,508		£2,436	£3,944
Parsons 1,397		2,244	3,641
Nightingale 1,434		2,106	3,540
Long 1,358		2,162	3,520
Whitehead 1,380		2,130	3,510
T. Hooper 1,335		2,114	3,449
J. Marsland 1,292		1,995	3,287

LONDON.—For rebuilding No. 10, Hop Gardens, St. Martin's-lane, as per plans and specifications prepared by Mr. W. M. Brutton, 171, Queen Victoria-street. Quantities by Mr. Wm. Hawker:—

Gritchard & Renwick £1,087		Rowe £975	
Whitehead 990		Holloway 973	
Hooper 980		Courtney & Fairbairn 945	

PENARTH.—For additions to St. Macburne, Penarth, for the Misses Sumners:—

Lattey & Co.....£768	0	John Jones.....£646	0
J. S. Shepton 719	0	John Styles 620	0
A. J. Howell & Co..... 690	0	A. Berridge 600	0
Hatherly & Carr 677	0	D. G. Price 598	0
D. Davies and W. Maddren 672	0	Knox & Wells 583	0
Pickford & Son 660	0	Thos. Wood & Son 550	0
Jones & Thornley 650	0	Hy. Morgan 505	16
		B. Evans, Cardiff* 486	0

* Accepted.

POLPERRO (Cornwall).—For building a pier, Baulks, &c., in the harbour of Polperro, for the Harbour Trustees. Mr. Silvanus, W. Jenkin, C.E., Liskeard, Cornwall:—
C. Lang, Liskeard, Cornwall, accepted at a schedule of prices.

POOLE (Dorset).—For the erection of corn-store, stable, and coach-house for Mr. Warn, High-street. Mr. Ed. Van Schepdael, architect:—

E. R. Tilsed £415	18 6	A. D. Saunders £290	0 0
T. C. Rigler..... 325	0 0	W. H. Gray (accepted) 283	0 0
		[All of Poole.	

[Architect's estimate, £306 7s.]

PORTSMOUTH.—For stores and additions to offices, for the Portsea Island Gas Light Co. Messrs. Rake & Cogswell, architects, Portsmouth:—

J. Croad £1,130		H. Corke £1,075	
Light & Son..... 1,117		H. Jones (late) 1,050	
W. Ward 1,099		W. Evans (accepted) 1,050	

SOUTHAMPTON.—For the construction of a pile foundation, &c., for the Mount Pleasant Board School, Bevois Valley. Mr. John H. Blizard, architect, Lansdowne House, Castle Lane, Southampton. Quantities by architect:—

Stevens & Co. £7,900	0	Roe & Grace £6,660	0
Daysh 6,980	0	F. Osman 6,584	0
A. Payne 6,978	0	W. H. Bull 6,484	0
Playfair & Toole 6,847	0	Dyer & Sons, Bevois Hill, Southampton*... 6,420	0
Honeychurch & Co. ... 6,855	8		
Cmo't & Bitten 6,697	0		

* Provisionally accepted.
[Architect's protecting estimate, £6,836.]

ROWHEDGE (Essex).—For levelling, sewering, and making-up new road and paths, for Mr. R. Daniells. Mr. G. H. Page, surveyor, Trinity-chambers, Colchester :—

Chas. Feigate	£274 17 4	Geo. Rackham, Plumstead (accepted)	£138 0 0
A. Diss	164 0 0		
Rowland Bros.	139 0 0		

TRAWDEN (Lancs.),—Accepted for the erection of four dwelling-houses, "Rock Inn," &c., and stables, for Mr. William Astley. Mr. Thos. Bell, architect, Burnley :—

	Rock Inn and Stables.	Four Dwelling Houses.
Masonry.—Henry Atkinson, Herferlane, Colne	£952 19 1	£476 14 0
Joinery.—R. Ridehalgh, Burnley-road, Colne	428 13 1	160 0 0
Slating.—W. Stanworth, Burnley	64 0 0	38 17 6

WALSALL.—For the erection of a lodge at the District Hospital. Messrs. Bailey & McConnal, architects, Bridge-street, Walsall :—

The Walsall Builders' Supply and Contracting Co. * .. £238

* After allowing for old materials.

WANSTEAD.—For the erection of additions to Downsell-road Schools, for the Wanstead School Board. Mr. John T. Bressey, architect, 70 and 71, Bishopsgate-street-within, E.C. :—

D. C. Jones & Co.	£5,743	T. White & Son	£5,350
Hearle & Farrow	5,579	Coulsell Bros.	5,319
Joseph Potter	5,380	James Catley	5,249
A. Reed & Son	5,375	H. R. Rons	4,878

[Architect's estimate, £5035 12s. 6d.]

WARRINGTON.—For the erection of destructor furnaces, embankments, &c., Longford depot (contract No. 3), for the Corporation. Mr. James Deas, engineer. Quantities by engineer :—

J. A. Ewart, Warrington, accepted at schedule of prices.

[Five others tendered.]

YEOVIL.—For erecting the Cole Memorial Church, Yeovil, Somerset. Mr. J. Nicholson Johnston, architect, 21, Princes-street, Yeovil :—

Andrews	£9,650	Symonds	£8,500
Stephens, Bastow, & Co., Ltd.	8,998	Cowlin & Sons	8,173
Haywards & Woster	8,899	Bird & Vippard	7,873
		Pollard	7,499

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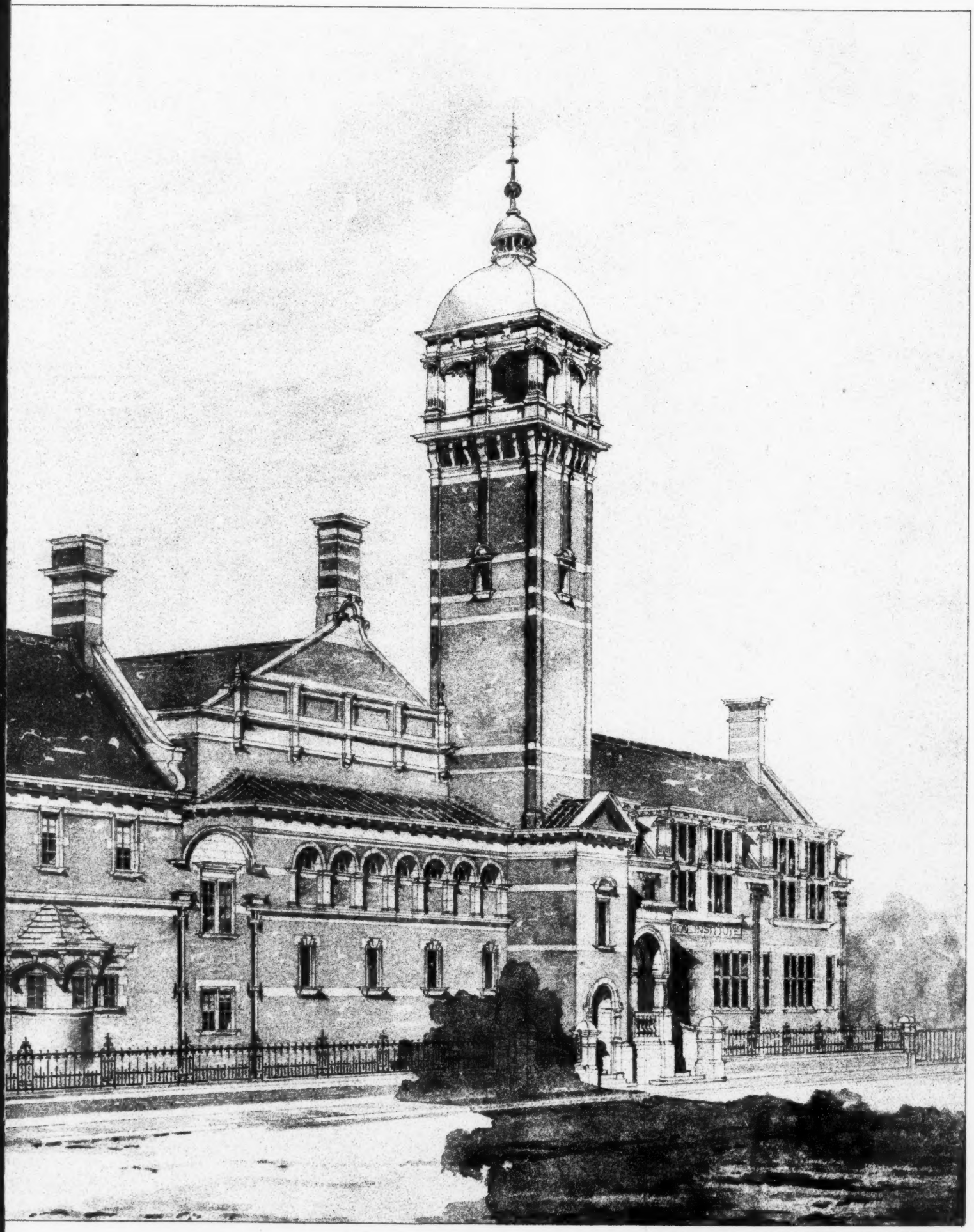

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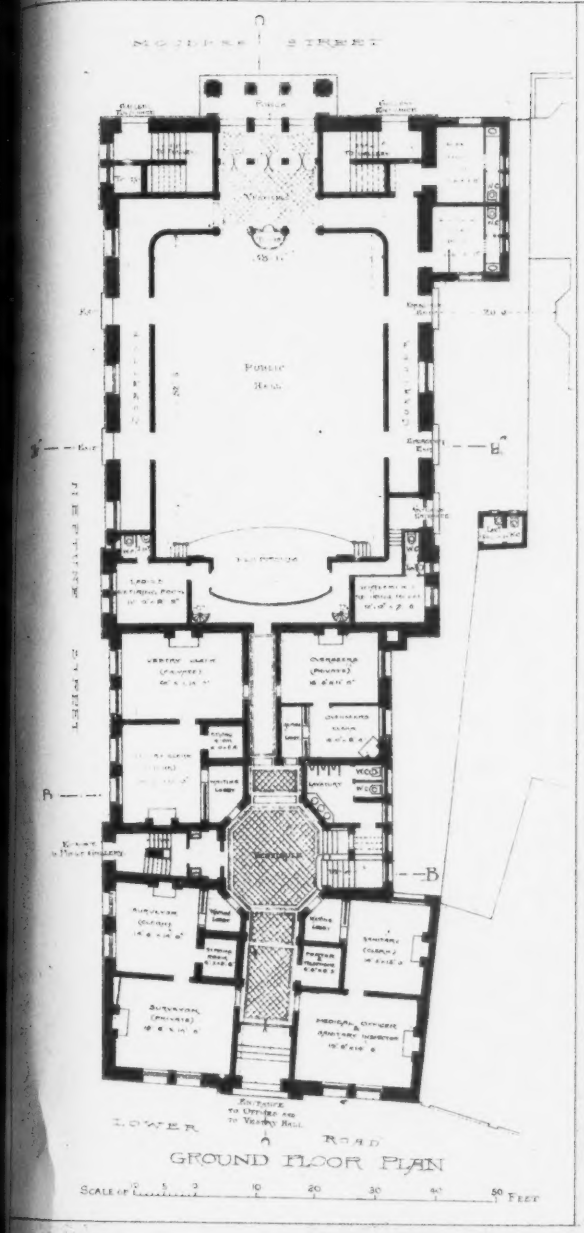
ITUTE, LEYTON.—Mr. F. H. Tulloch, A.R.I.B.A., Architect.



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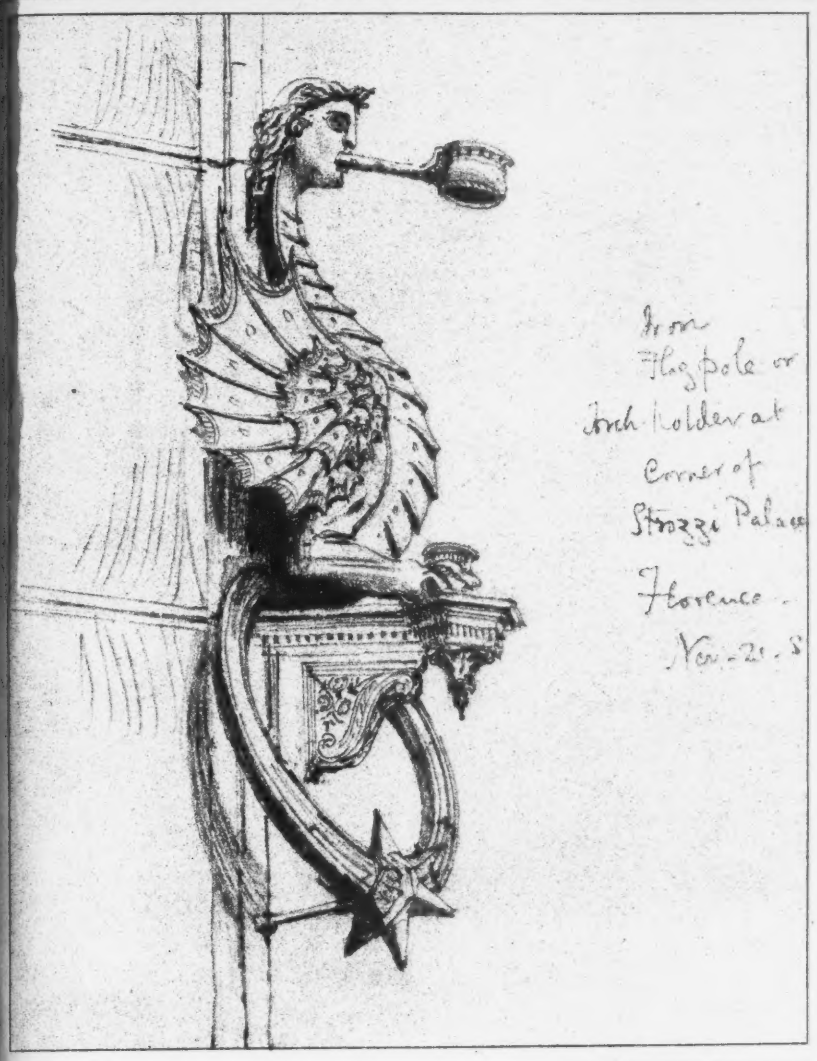
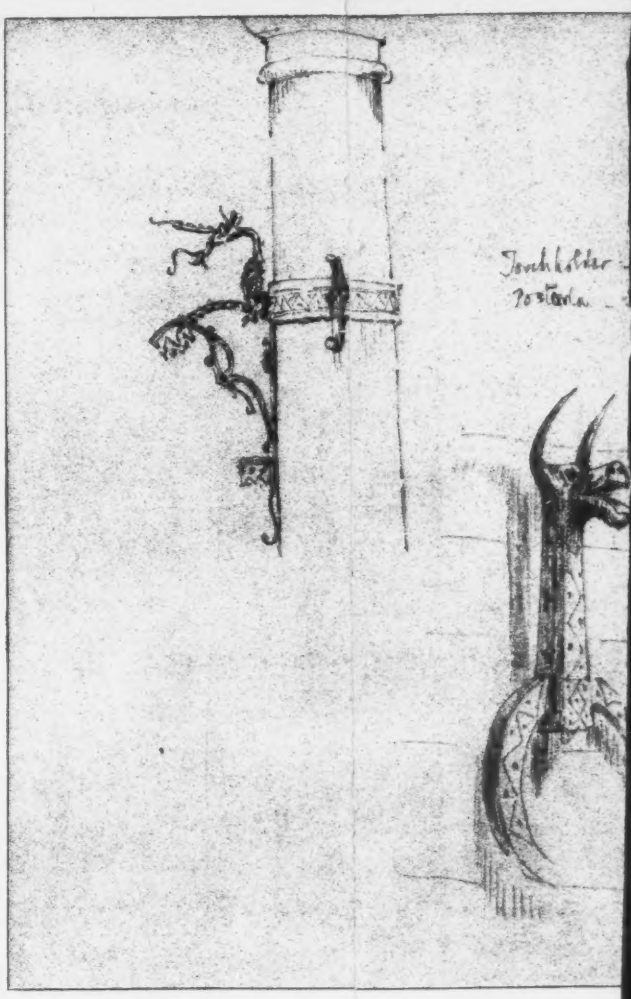
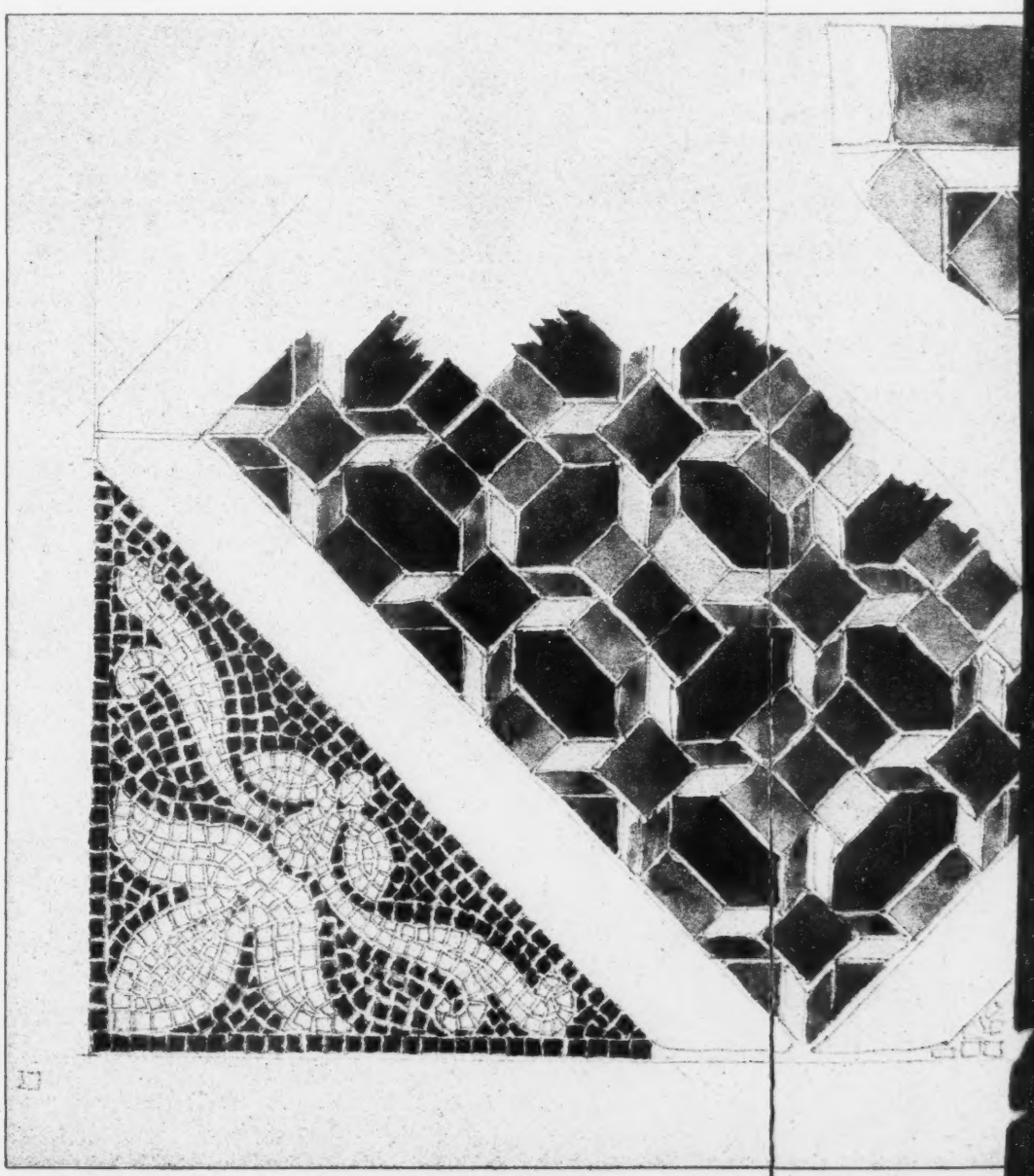


Iron
Flagpole or
torch holder at
Corner of
Strozzi Palace
Florence.
Nov-20-S



Torch holder
Portella



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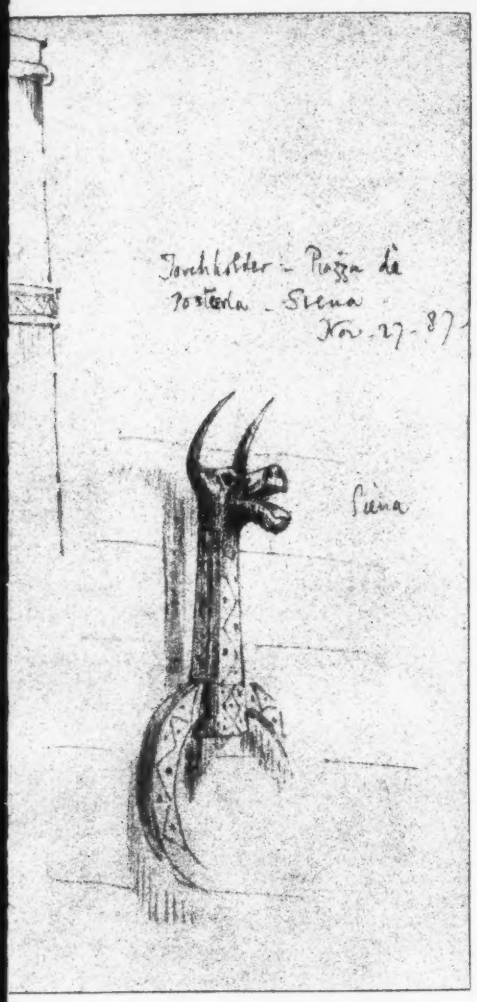

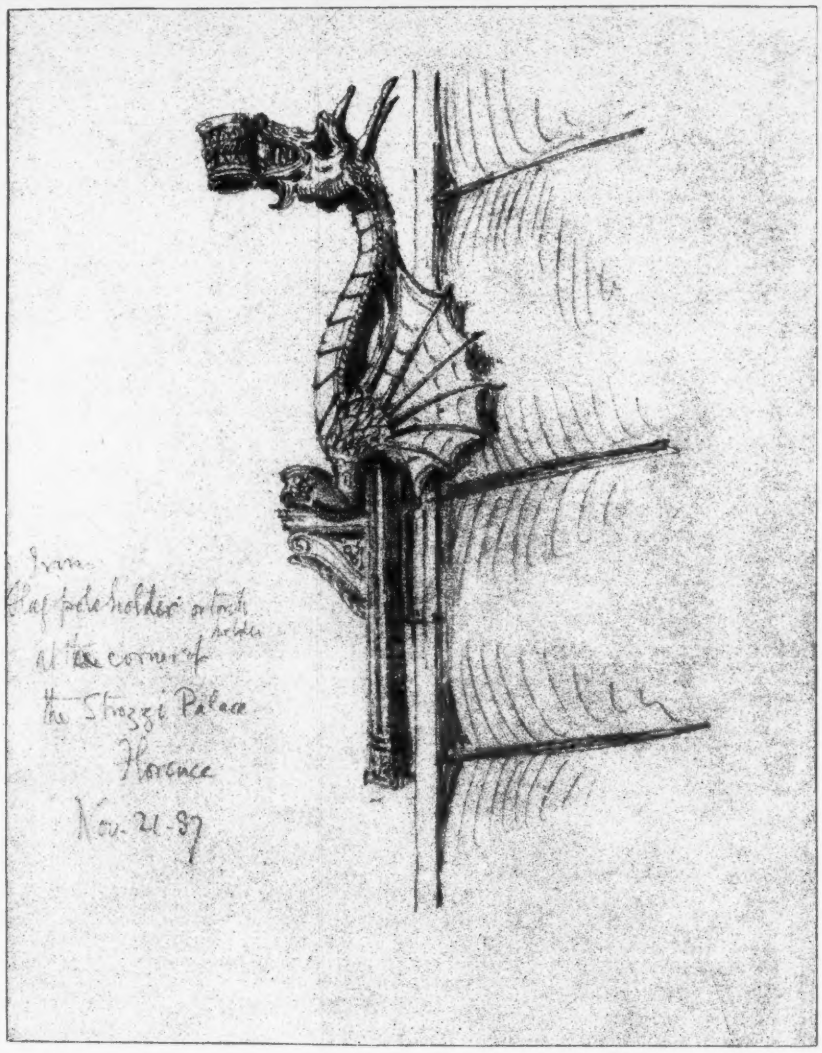

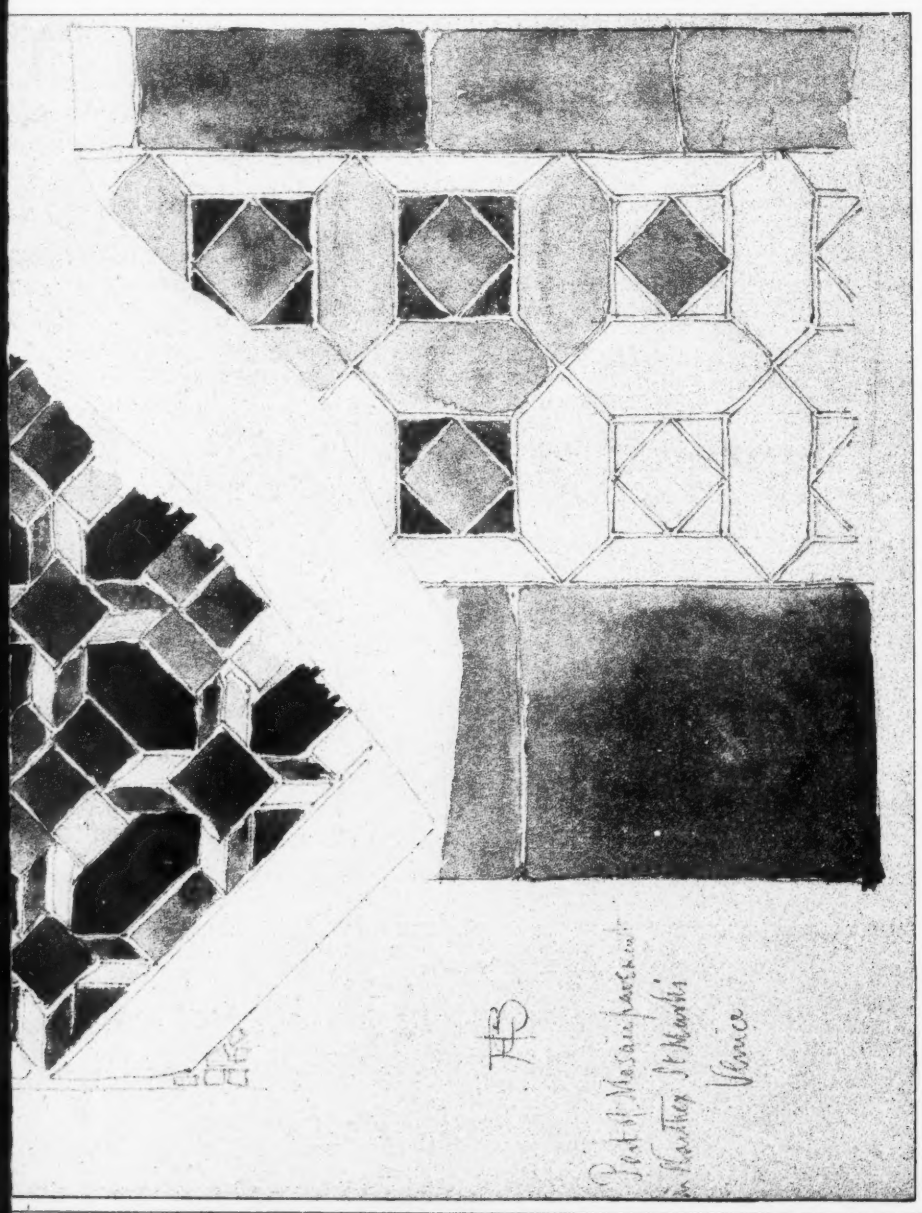

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) MOSAIC PAVEMENT AT ST MARK'S, VENICE.—By Mr A C. Blomfield